

Knudson - Highly Confidential - Trade Secret

A F T E R N O O N S E S S I O N

1:36 p.m.

THE VIDEO OPERATOR: This is videotape number 2, the continuation of the deposition of Mr. Knudson. Today is July 12th, 1995. The time on the screen is 1:36:36. You're on the record.

D A V I D K N U D S O N,
resumed, having been previously duly sworn, was examined and testified further as follows:

CONTINUED EXAMINATION

BY MR. ROGERS:

Q. Mr. Knudson, we broke at a time when we were talking about what's been marked as Knudson Exhibit 2. If I could ask you just to refer back to that document.

A. Sure.

Q. And specifically, if I could direct your attention to a page number, and I'm going to go according to the Bates stamp that begins PA, so if you'll turn to PA 494527, please.

(Witness complies.)

A. Okay.

MANHATTAN REPORTING CORP.

2058451990

1 Knudson - Highly Confidential - Trade Secret

01:37:20 2 Q. And I had asked you just before the
01:37:24 3 break what you understood the term "size prep" to
01:37:26 4 mean. Do you see the reference to size prep at
01:37:28 5 the top of the page?

01:37:28 6 A. Yes, I do.

01:37:30 7 Q. And then five or six lines down,
01:37:34 8 still in that first or left hand column, you'll
01:37:38 9 see "DNCEL liquor." And we spoke earlier about
01:37:42 10 what you understood DNCEL to stand for.

01:37:48 11 The eighth line underneath DNCEL
01:37:54 12 liquor says, "Nicotine level." Does that
:37:56 13 reference to nicotine level on a document
01:38:00 14 describing potential quality measurements refresh
01:38:04 15 your recollection as to whether nicotine is
01:38:06 16 tested at any point in the RL process?

01:38:08 17 MR. MURPHY: I object to the form of
01:38:10 18 the question. The witness has testified he
01:38:14 19 hasn't seen this document before. What precisely
01:38:18 20 are you asking him about an entry on a document
01:38:18 21 that he hasn't seen before?

01:38:20 22 MR. ROGERS: I'm simply asking,
01:38:22 23 having looked at this entry this afternoon,
01:38:26 24 whether that refreshes his recollection as to
:38:28 25 whether or not nicotine is ever tested at any

2058451991

Knudson - Highly Confidential - Trade Secret

01:38:30 stage in the RL process. I'm not asking him to
01:38:34 authenticate this particular document. I'm
01:38:36 simply asking whether it refreshes his
01:38:36 recollection.

01:38:38 MR. MURPHY: I object to the form.
01:38:38 You can answer the question.

01:38:42 A. It doesn't do anything to refresh my
01:38:42 recollection.

01:38:48 Q. Do you know when Philip Morris first
01:38:54 started producing reconstituted tobacco?

01:39:02 A. I can't put an exact date on it.
:39:06 When I came with the company in 1973, the BL
01:39:10 process was already in existence to produce
01:39:16 reconstituted tobacco. It is my impression that
01:39:20 had been in existence in some form or another for
01:39:22 some period of years.

01:39:28 Q. Did you participate in any way in the
01:39:34 development of processes for the Park 500 plant,
01:39:36 which was shortly after your arrival at Philip
01:39:36 Morris?

01:39:44 A. No, I did not.

01:39:44 Q. Do you know why Philip Morris uses
01:39:44 reconstituted tobacco in its cigarettes?

:39:50 A. It is my understanding that the

2058451992

MANHATTAN REPORTING CORP.

Knudson - Highly Confidential - Trade Secret

purpose for reconstituted tobacco is to optimize the utilization of the tobacco purchases made by Philip Morris.

Q. I take it from your answer, and correct me if I'm wrong, that your description speaks to the economic advantages of the reconstituted process.

MR. MURPHY: I object to the form of the question. I think the question is inartful. If you could be more clear, I think that might be helpful.

Q. What did you mean, Mr. Knudson, by the answer, "to optimize the utilization of tobacco purchases made by Philip Morris"?

A. When Philip Morris purchases tobacco, what they acquire is a leaf product or a subsequently processed product which consists of the leaf, or as it's sometimes referred to, lamina portion of the leaf, as well as the stem material that came along with that.

In the processing of the -- going all the way back to the leaf, in the processing, the separation of the stem from the lamina material and subsequent processing, there are portions of

Knudson - Highly Confidential - Trade Secret

that that are potentially unusable because of their shape, size, or form.

And the reconstituted process allows an opportunity to improve on the utilization of at least some of those materials.

Q. Are there any other reasons, other than the utilization of those materials, that Philip Morris manufactures reconstituted tobacco?

A. Not to the best of my knowledge.

Q. I'm not going to mark this as an exhibit. It's been marked as an exhibit before. I'll simply represent to you, Mr. Knudson, that I'm handing you what's been marked Burnley Exhibit 32, which is a rather lengthy document, on the front page of which it says, "The RL process overview."

This particular version I'm giving you doesn't have the stamp of the Burnley exhibit number. I'll simply represent to you and counsel that it's a duplicate of that exhibit. And just to repeat the Bates stamp number, it's PA 211404 to PA 211712, corresponding Philip Morris production numbers 2030363637 through

Knudson - Highly Confidential - Trade Secret

01:43:36 2030363945.

01:43:38 Have you ever seen this document
01:43:40 before, Mr. Knudson?

01:43:42 A. Not to my knowledge.

01:43:46 Q. Have you ever heard of this document
01:43:46 before?

01:44:00 A. I don't know that I've heard of this
01:44:06 document. The fact that I have probably heard
01:44:06 reference from time to time over the years to
01:44:12 documents that might be generated as an overview
01:44:16 sort of description of any process wouldn't be
:44:18 unusual.

01:44:20 So there may have been a document
01:44:22 generated at some point in time that was called
01:44:28 an RL process overview, of which this may be in
01:44:30 part a reflection of some of that kind of
01:44:34 documentation. But I'm not familiar with this
01:44:38 document as it stands before me today. I don't
01:44:42 remember ever seeing anything of quite this
01:44:44 volume.

01:44:54 Q. Would you ever have reason to refer
01:44:58 to overview documents, the types of overview
01:45:00 documents that you've described, for various
:45:02 processes?

2058451995

MANHATTAN REPORTING CORP.

1 Knudson - Highly Confidential - Trade Secret

01:45:04 2 MR. MURPHY: I object to the form of
01:45:06 3 the question. I think it slightly misstates his
01:45:06 4 prior testimony. But you can answer the
01:45:08 5 question.

01:45:10 6 A. Could you restate the question for
01:45:10 7 me?

01:45:14 8 Q. Sure. Have you ever had reason to
01:45:18 9 consult or review overview documents for any
01:45:20 10 Philip Morris process?

01:45:26 11 A. The -- I can't remember as an exact
01:45:32 12 fact. However, in moving from job responsibility
:45:36 13 to job responsibility, I probably would have had
01:45:38 14 the opportunity and may have in fact taken
01:45:42 15 advantage of the opportunity to review documents
01:45:46 16 which would give me a general understanding of
01:45:48 17 certain processes that I might be expected to
01:45:48 18 have some general knowledge of.

01:45:52 19 Whether they were called overview
01:45:52 20 documents, I can't recall.

01:45:58 21 Q. Do you know of any other document
01:46:00 22 describing any process that is called a blank
01:46:04 23 process overview? And you can substitute RL ^{for} ~~or~~
01:46:06 24 anything else.

:46:06 25 MR. MURPHY: I object to the form of

MANHATTAN REPORTING CORP.

2058451996

Knudson - Highly Confidential - Trade Secret

01:46:08 the question. You can answer the question.

01:46:12 A. Again, I think the potential is that
01:46:16 there could well be documents that describe any
01:46:18 number of Philip Morris processes that at some
01:46:22 point in time might have been either described
01:46:30 verbally or in fact titled "overview documents."

01:46:30 I don't have an accurate recollection
01:46:34 of what any of those might or might not have
01:46:34 been.

01:46:36 Q. For instance, do you have any
01:46:40 knowledge whether there's a document entitled "BL
:46:44 process overview"?

01:46:48 A. I don't have any recollection that I
01:46:50 could say with any surety that such a document
01:46:52 exists.

01:46:56 Q. Was there a process overview for
01:46:58 Bermuda Hundred while you were the plant
01:46:58 manager?

01:47:00 A. I'm sure there was a document that
01:47:10 represented some form of a synopsis of what the
01:47:12 process was all about. I don't know ^{that} ~~if~~ it was
01:47:14 called an overview document. It would be a
01:47:16 fairly normal term ^{to use} to apply to that kind of a
:47:18 document.

2058451997

MANHATTAN REPORTING CORP.

Knudson - Highly Confidential - Trade Secret

01:47:18 2 Q. When you say "I'm sure there was a
01:47:22 3 document," is there any document that you're
01:47:24 4 thinking of in particular that would fit within
01:47:26 5 this description?

01:47:30 6 A. No. I'm just saying in general
01:47:32 7 principle, I'm sure that such a document could
01:47:32 8 well have existed.

01:47:46 9 Q. Was there a training manual for the
01:47:50 10 Bermuda Hundred plant while you were the plant
01:47:50 11 manager?

01:47:54 12 MR. MURPHY: I object to the form of
:47:56 13 the question. By "training manual," do you mean
01:48:00 14 a training manual for plant employees?

01:48:02 15 MR. ROGERS: Yes. That's fair.

01:48:04 16 A. I believe there were multiple
01:48:06 17 training manuals.

01:48:14 18 Q. When you were promoted from your
01:48:18 19 position as plant manager of Bermuda Hundred, did
01:48:20 20 you bring any files with you to your next
01:48:22 21 position from Bermuda Hundred?

01:48:26 22 A. No. When I left Bermuda Hundred I
01:48:30 23 was moving into an entirely different area of
01:48:32 24 responsibility, and all my files were left with
:48:36 25 the facility and with succeeding facility

2058451998

1 Knudson - Highly Confidential - Trade Secret
01:48:36 2 management.

01:48:40 3 Q. Do you know where those files are
01:48:42 4 today?

01:48:42 5 A. No, I don't.

01:48:48 6 Q. Did you place those files in the
01:48:50 7 possession of a particular person prior to your
01:48:54 8 departure from Bermuda Hundred?

01:48:56 9 A. To the best of my recollection those
01:48:58 10 files were left in the existing file system,
01:49:02 11 either in the office that I had occupied or in
01:49:08 12 any other area where, quote, central file records
:49:10 13 might have been maintained.

01:49:12 14 Q. And is that central file records
01:49:14 15 within Bermuda Hundred, or are you talking about
01:49:18 16 a larger central files that encompasses --

01:49:20 17 A. Central files within Bermuda Hundred,
01:49:22 18 basically in office files versus out of office
01:49:26 19 files that my secretary ^{maintained} ~~maintains~~.

01:49:30 20 Q. And at the time that you left Bermuda
01:49:32 21 Hundred, was there a particular person who was in
01:49:34 22 charge of the central files?

01:49:36 23 MR. MURPHY: At Bermuda Hundred?

01:49:38 24 MR. ROGERS: At Bermuda Hundred.

:49:42 25 A. I believe that my secretary at that

MANHATTAN REPORTING CORP.

2058451999

Knudson - Highly Confidential - Trade Secret

01:49:46 2 time was the principal person responsible for the
01:49:48 3 filing and maintenance of those documents that
01:49:50 4 were not kept in my office.

01:50:00 5 Q. And did your secretary go with you to
01:50:04 6 your next position or did she remain at Bermuda
01:50:04 7 Hundred?

01:50:06 8 A. She remained at Bermuda Hundred.

01:50:08 9 Q. What's her name?

01:50:10 10 A. Her name was Peggy Allen.

01:50:12 11 Q. Is she still employed by Philip
01:50:14 12 Morris?

:50:20 13 A. I believe so, but I'm not 100 percent
01:50:20 14 sure.

01:50:22 15 Q. Do you know at which facility at
01:50:24 16 Philip Morris she works?

01:50:26 17 A. I know, subsequent to the more
01:50:34 18 complete closure of Bermuda Hundred, that she
01:50:36 19 moved to the Park 500 facility.

01:50:40 20 Q. And to your knowledge is she still at
01:50:42 21 Park 500?

01:50:44 22 A. I'm not sure whether she is or not.

01:50:56 23 Q. Have you had any reason during the
01:50:58 24 course of your employment at Philip Morris to
:51:02 25 familiarize yourself with any description of the

MANHATTAN REPORTING CORP.

2058452000

Knudson - Highly Confidential - Trade Secret

01:51:04 2 RL process at Park 500?

01:51:12 3 MR. MURPHY: I object to the form of
01:51:12 4 the question. I think it's very broad. But if
01:51:14 5 the witness understands the question, he can
01:51:14 6 answer it.

01:51:24 7 A. As the manager of the tobacco
01:51:30 8 materials group or tobacco materials division in
01:51:34 9 R&D, since one of the areas that I was
01:51:42 10 responsible for was an RL-like pilot plant, I am
01:51:48 11 sure that there were aspects of the process that
01:51:54 12 came up in the course of business, in discussions
:51:56 13 with those people working for me who were more
01:52:00 14 knowledgeable in the process, that I availed upon
01:52:04 15 their process understanding to enhance my process
01:52:08 16 understanding, to understand why we might carry
01:52:10 17 out a piece of work or how it applied to that
01:52:10 18 facility.

01:52:16 19 Q. Can you think of any document in
01:52:18 20 particular that you would have seen as part of
01:52:20 21 this?

01:52:20 22 A. No.

01:52:22 23 MR. MURPHY: I object to the form.
01:52:24 24 You can answer.

:52:36 25 Q. Are there separate finished sheet

2058452001

MANHATTAN REPORTING CORP.

Knudson - Highly Confidential - Trade Secret

01:52:38 2 specifications for the RL that's manufactured at
01:52:40 3 Park 500?

01:52:42 4 MR. MURPHY: I object to the form of
01:52:44 5 the question. What do you mean by "separate"?
01:52:46 6 Separate from what?

01:52:48 7 MR. ROGERS: Separate from the
01:52:56 8 specifications for the reconstituted tobacco at
01:52:56 9 BL.

01:52:58 10 MR. MURPHY: Is the question are
01:53:00 11 there finished sheet specifications for RL
01:53:02 12 manufactured at Park 500?

:53:02 13 MR. ROGERS: That's exactly the
01:53:04 14 question.

01:53:04 15 MR. MURPHY: Okay. If you understand
01:53:06 16 the question, you can answer.

01:53:10 17 A. I believe that to be the case.
01:53:12 18 However, I haven't had any reason to look at
01:53:16 19 those specifications to be able to answer that
01:53:22 20 question from a point of fact or knowledge.

01:53:28 21 Q. So the specifications that we were
01:53:32 22 talking about this morning that fall within the
01:53:36 23 jurisdiction of your department, are those
01:53:40 24 specifications exclusive to the finished product
:53:40 25 specifications?

2058452002

Knudson - Highly Confidential - Trade Secret

MR. MURPHY: I object to the form of the question. You can answer.

A. Those specifications cover, as I believe I stated this morning, cover specifications for certain types of direct materials, as well as specifications for finished cigarette products.

Q. As of March 24, 1994, do you know who was in charge or had ultimate responsibility for the finished product specifications for the RL that was manufactured at Park 500?

A. No, I do not.

(Knudson Exhibit 3 for identification, memorandum from the quality council to all Park 500 employees.)

Q. Mr. Knudson, you've just been handed what's been marked Knudson Exhibit 3, which is a memorandum from the quality council to all Park 500 employees dated July -- it appears to be July 13th, 1993. The date is covered by the confidentiality stamp.

The Bates numbers on the document are PA 447158 to PA 447170. The corresponding production numbers are 2030486181 through

Knudson - Highly Confidential - Trade Secret

01:56:30 2 2030486194.

01:56:34 3 Have you ever seen this document
01:56:36 4 before?

01:56:36 5 A. No, I have not.

01:56:42 6 Q. The reference to quality council on
01:56:46 7 the first page, do you understand that to be the
01:56:50 8 quality council you described to me this
01:56:50 9 morning?

01:56:52 10 A. I wouldn't know whether that was the
01:56:54 11 quality council that I described to you this
01:57:00 12 morning or whether in fact the Park 500 facility
:57:06 13 uses that term to describe a within-factory group
01:57:10 14 of people who play a similar but more focused
01:57:10 15 role around the factory.

01:57:14 16 Q. Do you know whether there is such a
01:57:18 17 separate quality council within the Park 500
01:57:18 18 facility?

01:57:20 19 MR. MURPHY: I object to the form of
01:57:22 20 the question. I'm not sure the terminology is
01:57:24 21 correct in light of the witness's testimony. But
01:57:26 22 if you understand what you're being asked, you
01:57:28 23 can answer the question.

01:57:30 24 A. No, I don't know whether that
:57:34 25 terminology is used to apply to a functionality

2058452004

Knudson - Highly Confidential - Trade Secret

within the factory or not.

Q. Do you know whether there is -- and I'll use your words -- a within-factory group of people who play a similar but more focused role as the quality council that you described this morning?

A. It is my understanding of the MIP process that there is a functionality that exists that, for lack of a better term, let me call a committee, to not be confused with words like "council," that would exist both for staff groups and for factory groups, that essentially represents a factory management team.

Whether or not in the Park 500 environment that team has adopted a name, i.e. "the quality council," I do not know.

Q. On this first page it lists the subject matter as the 1994 annual quality plan. And I'll read the summary that appears on this first page.

"Park 500's 1994 annual quality plan objectives reflect the QC's expectations necessary to remain competitive in today's marketplace. Although all are important,

MANHATTAN REPORTING CORP.

2058452005

Knudson - Highly Confidential - Trade Secret

reducing the cost of producing RL must be our
foremost objective.

"To meet senior management's
objective of becoming the low cost producer in
our industry, all of Philip Morris's facilities
must make equal contributions that fairly
distribute this task. Ideas on how to take costs
out of all of Park 500 systems must come from
every employee in order for us to meet this
objective."

Prior to looking at this document,
were you aware of this objective at Park 500?

A. No.

Q. Can you think of any process or
product changes at Park 500 that were implemented
with an eye towards this objective of, quote,
becoming the low cost producer in our industry?

MR. MURPHY: I object to the form of
the question. You can answer.

A. I wouldn't have any awareness of
anything that had occurred vis-a-vis this focus.

Q. During your tenure at Philip Morris,
have you ever been involved in a process
improvement project at Park 500?

MANHATTAN REPORTING CORP.

2058452006

1 Knudson - Highly Confidential - Trade Secret

02:00:46 2 A. To the best of my recollection, I
02:00:48 3 have not been involved in any such process
02:00:52 4 improvement activity. That's not to say that
02:00:56 5 that kind of an activity may not have occurred
02:00:58 6 somewhere within my organization.

02:01:02 7 Q. During your tenure at Philip Morris,
02:01:04 8 have you ever been involved in a product
02:01:06 9 improvement project at Park 500?

02:01:10 10 A. Not to the best of my knowledge.

02:01:16 11 Q. If you'll turn to the fourth page of
02:01:22 12 this exhibit, Knudson 3, the Bates stamp that
:01:28 13 appears is PA 447161, and at the top of the page
02:01:30 14 there's some handwritten notes, and in the first
02:01:36 15 typed line is, "1994 AQP objectives and focus."
02:01:40 16 And then the next line is "Quality of RL product
02:01:40 17 and processes."

02:01:46 18 I want to focus on item number 2,
02:01:48 19 which reads, "Implement improvements which will
02:01:54 20 reduce RL process variation such as," and I'll
02:01:58 21 list the three typed items that are on this page,
02:02:00 22 "Development of fiber sized measurement and
02:02:06 23 control; optimize tobacco solubles control." The
02:02:10 24 third is "Additional improvement suggestions."

:02:10 25 I want to ask you about the second

MANHATTAN REPORTING CORP.

2058452007

Knudson - Highly Confidential - Trade Secret

item on there, "Optimize tobacco solubles control." Do you know what tobacco solubles are?

A. In the context of the RL process, the essence of the process is one in which the tobacco solubles are separated from the cellulosic material in the incoming feedstock. And those tobacco solubles I assume are what are being referred to here.

Q. And have you ever heard the expression "optimize tobacco solubles control"?

A. To answer that question, I cannot say that I have seen this document or heard that term in the context of this document. The distinct probability is that, at some point in time, that a terminology such as optimize anything is a term that I could well have heard.

So I can't say that I haven't heard that term, but I cannot remember specifically hearing that phrase.

Q. Do you know what the target tobacco soluble level is for the finished sheet at Park 500?

MR. MURPHY: I object to the form of

MANHATTAN REPORTING CORP.

2058452008

Knudson - Highly Confidential - Trade Secret

the question. You can answer the question.

A. The answer is no. However, with respect to the question, it is my understanding that there are in fact two sheets produced there, that is, two products with different flavor systems. But no, I do not know what the, quote, target solubles level is for either one of those.

Q. What are the two sheets to which you're referring?

A. In the terminology that I'm most familiar with, those products are referred to as RLB and RLTC.

Q. And with respect to RLB, do you know whether there is a finished product specification for the solubles level?

MR. MURPHY: I object to the form. Total soluble level finished sheet, is that the question?

MR. ROGERS: Yes.

A. No, I do not.

Q. And with respect to RLTC, do you know whether there is a finished product specification for the solubles level?

MANHATTAN REPORTING CORP.

2058452009

Knudson - Highly Confidential - Trade Secret

02:05:26 A. No, I do not.

02:05:32 Q. Do you know what comprises the
02:05:36 tobacco solubles in the RL process?

02:05:38 MR. MURPHY: I object to the form of
02:05:40 the question. You can answer the question.

02:05:46 A. The tobacco solubles in the RL
02:05:54 process would have different constituencies at
02:06:06 different points in the process.

02:06:08 Q. Let's take the stage in the process
02:06:14 where the solubles are extracted from what you
02:06:18 described as the cellulosic material. So I'm
:06:20 talking early on in the process. What are the
02:06:24 constituencies of that soluble?

02:06:26 MR. MURPHY: I object to the form of
02:06:28 the question. Misstates his prior testimony.
02:06:30 You can answer the question.

02:06:32 Q. Do you understand my question?

02:06:36 A. If I understand your question, and
02:06:42 perhaps if I'll restate it it's most clear, at
02:06:44 the point in time where a liquor stream
02:06:52 represents a separation of the tobacco solubles
02:07:02 from the initial feedstock, there is a stream
02:07:08 containing large amounts of water, plus an array
:07:14 of tobacco solubles that I'm not able to

MANHATTAN REPORTING CORP.

2058452010

1 Knudson - Highly Confidential - Trade Secret

02:07:16 2 enumerate all the components that are in there.

02:07:18 3 Q. What components are you able to

02:07:20 4 enumerate?

02:07:28 5 A. Dependent upon the feedstock, but
02:07:40 6 assuming^a what I will call a typical feedstock to
02:07:46 7 that process, there are certain tobacco
02:07:50 8 components which are soluble, and would be
02:07:54 9 expected to be found in that stream.

02:08:00 10 Those would include sugars. It would
02:08:06 11 include nicotine. It would include any number of
02:08:12 12 other compounds that I'm not able to enumerate.

:08:18 13 Q. With respect to the RLB that you made
02:08:22 14 reference to before, do you understand there to
02:08:26 15 be a single blend formula for the RLB in terms of
02:08:28 16 the raw materials?

02:08:30 17 MR. MURPHY: I object to the form.
02:08:30 18 You can answer.

02:08:38 19 A. I'm not familiar with the blend
02:08:42 20 formulas associated with the RL process.

02:08:58 21 Q. Are you familiar with the term
02:09:00 22 "refractive index"?

02:09:02 23 A. Yes, I am.

02:09:02 24 Q. What do you understand that term to
:09:02 25 mean?

Knudson - Highly Confidential - Trade Secret

02:09:08 2 MR. MURPHY: Objection. Are you
02:09:12 3 asking with reference to any particular process,
02:09:14 4 or are you asking as a general engineering term?

02:09:16 5 MR. ROGERS: I'm asking first as a
02:09:18 6 general engineering term.

02:09:24 7 A. I'm going to be sketchy on this,
02:09:28 8 because it's been a lot of years, but I know that
02:09:38 9 refractive index is a measure of the refraction
02:09:42 10 of light, and it can be used with certain
02:09:46 11 materials as one way of determining whether or
02:09:56 12 not -- for instance, a pure water sample might
:10:00 13 have one refractive index, and the addition of
02:10:02 14 certain constituents that still allowed a
02:10:06 15 refractive index to be performed on it might
02:10:10 16 cause a predictable shift in refractive index,
02:10:12 17 and as such it becomes something that would be
02:10:18 18 used as a tool in a laboratory for one form of
02:10:20 19 making physical measurements on a solution.

02:10:28 20 Q. With respect to the RL process, what
02:10:30 21 do you understand the term "refractive index" to
02:10:32 22 mean?

02:10:32 23 MR. MURPHY: Objection to form. Lack
02:10:34 24 of foundation. You can answer the question if
:10:36 25 you understand it.

MANHATTAN REPORTING CORP.

2058452012

Knudson - Highly Confidential - Trade Secret

02:10:38 2 A. I'm not sure I'm familiar with how
02:10:40 3 refractive index is used in the RL process.

4 (Knudson Exhibit 4 for
5 identification, handwritten notes.)

02:11:22 6 Q. Mr. Knudson, you've just been handed
02:11:24 7 what's been marked as Knudson Exhibit 4, which is
02:11:32 8 a document of handwritten notes. The production
02:11:40 9 numbers are PA 911007 through PA 911009. The
02:11:40 10 corresponding Philip Morris production numbers
02:11:50 11 are 2030687558 through 2030687560.

02:11:52 12 This is not your handwriting, is it?

:11:52 13 A. No.

02:11:54 14 Q. Do you recognize this handwriting?

02:11:56 15 A. No, I do not.

02:12:00 16 Q. On the very first page there's a
02:12:04 17 series of bullet points. I want to ask you about
02:12:10 18 the second to last bullet point. And it's in
02:12:10 19 quotation marks, and I'll simply read it.

02:12:12 20 "We are not putting the amount of
02:12:16 21 solubles on the sheet we think we are." And then
02:12:20 22 in parentheses, "Refractive index."

02:12:22 23 Have you ever heard concern about the
02:12:30 24 amount of solubles being placed on the sheet at
:12:32 25 Park 500?

MANHATTAN REPORTING CORP.

2058452013

1 Knudson - Highly Confidential - Trade Secret

02:12:42 2 A. I think the only thing that I can say
02:12:48 3 is that I'm aware that discussions about the
02:13:00 4 soluble levels as applied to sheet are of
02:13:02 5 interest, were of interest ^{within} ~~in~~ areas I was
02:13:06 6 involved in, from the standpoint that the sheet
02:13:10 7 is capable of carrying only a certain degree of
02:13:16 8 or a certain level of solubles, since at the
02:13:20 9 point in time that those solubles are recombined
02:13:34 10 with the base web, they have had the addition of
02:13:36 11 flavor systems.

02:13:38 12 Then the nature and design of a
:13:40 13 flavor system combined with the solubles has to
02:13:44 14 be considered with respect to the ability to
02:13:52 15 reapply those solubles to the sheet.

02:13:54 16 I think that pretty well summarizes
02:14:00 17 my understanding of solubles with reference to
02:14:00 18 the base web.

02:14:06 19 Q. Turning back to this quote, the
02:14:10 20 reference here to refractive index, does that
02:14:12 21 refresh your recollection about the use of the
02:14:18 22 term "refractive index" with respect to the RL
02:14:18 23 process?

02:14:20 24 A. No, it surely does not.

:14:26 25 Q. As you understand the term

2058452014

Knudson - Highly Confidential - Trade Secret

02:14:32 2 "refractive index," would the amount of solubles
02:14:36 3 on the sheet -- could the amount of solubles on
02:14:40 4 the sheet be measured by refractive index as the
02:14:44 5 barometer, I guess is what I'm saying.

02:14:46 6 MR. MURPHY: I object to the form of
02:14:48 7 the question. I don't think you're paying the
02:14:50 8 witness an expert witness fee. But he can answer
02:14:50 9 the question.

02:14:56 10 A. Based on my limited understanding of
02:15:00 11 refractive index, I would think it would be
02:15:06 12 applicable only to solutions that were
:15:12 13 essentially clear or with minimal color so that
02:15:20 14 light passage could be measured and any
02:15:26 15 refraction or defraction determined.

02:15:28 16 So talking about solubles and talking
02:15:32 17 about subsequently applying those solubles back
02:15:34 18 to the base web resulting in the finished sheet
02:15:38 19 product, I'm not sure I understand the
02:15:40 20 application of the term "refractive index" to
02:15:40 21 that.

02:15:56 22 Q. Is it your understanding that
02:15:58 23 solutions that are not either, quote, essentially
02:16:04 24 clear, or, quote, of minimal color, could not be
:16:06 25 measured by the refractive index?

MANHATTAN REPORTING CORP.

2058452015

Knudson - Highly Confidential - Trade Secret

02:16:08 2 MR. MURPHY: I object to the form of
02:16:12 3 the question and to this entire hypothetical
02:16:14 4 discussion. If this witness is being asked
02:16:16 5 general knowledge as an engineer about a process
02:16:18 6 that he has said he's not familiar with the use
02:16:22 7 of this term in connection with, I'll let him
02:16:22 8 answer the question.

02:16:24 9 But I don't know what the purpose of
02:16:24 10 this is.

02:16:26 11 MR. ROGERS: I'm simply asking,
02:16:28 12 David, based upon his knowledge of the term
:16:32 13 "refractive index" as an engineer, I'm asking
02:16:34 14 him to apply it to what he knows about the RL
02:16:34 15 process.

02:16:36 16 And in this case, this specific
02:16:40 17 document that's been entered as an exhibit makes
02:16:42 18 a reference to refractive index in the context of
02:16:46 19 a quote that addresses the amount of solubles on
02:16:48 20 the sheet.

02:16:50 21 So I'm just simply asking him to
02:16:52 22 apply his knowledge of refractive index and to
02:16:54 23 get an understanding as to whether or not you
02:16:58 24 could measure a sheet that isn't either, in the
:17:02 25 witness's terms, clear or of minimal color by use

MANHATTAN REPORTING CORP.

2058452016

1 Knudson - Highly Confidential - Trade Secret
02:17:04 2 of a refractive index.

02:17:06 3 MR. MURPHY: I object to the form of
02:17:08 4 the question. I object to the line of
02:17:10 5 questioning here. I will let the witness answer
02:17:12 6 the question. I think the document speaks for
02:17:12 7 itself.

02:17:14 8 I think counsel has no need to argue
02:17:16 9 what he thinks the document does or does not
02:17:20 10 represent. But he can answer the question based
02:17:20 11 on his own knowledge.

02:17:26 12 A. I don't think I have enough knowledge
:17:28 13 of or recollection of refractive index to be able
02:17:36 14 to shed any light on how that references the
02:17:38 15 quote there with respect to solubles and sheet.

02:17:48 16 Q. If you could turn to the last page of
02:17:52 17 this document, I'm going to ask you about the
02:17:56 18 final words on this page, and I'll just read them
02:18:00 19 again. "Refractive index measure," and then
02:18:02 20 there's an arrow from the word "refractive" down
02:18:06 21 to the word "Sharkey," and then there's a dash,
02:18:10 22 and then there's a quote, "We are driven by
02:18:10 23 this."

02:18:12 24 Do you know anyone named Sharkey who
:18:14 25 worked for Philip Morris?

1 Knudson - Highly Confidential - Trade Secret

02:18:16 2 MR. MURPHY: I object to the form of
02:18:18 3 the question. You can answer.

02:18:22 4 A. I have a recollection of having heard
02:18:30 5 that name. And that recollection includes that
02:18:32 6 that name applies to an individual at Park 500.
02:18:34 7 I don't know whether that's a first name or a
02:18:42 8 last name. That's the extent of my knowledge.

02:18:50 9 Q. Have you ever heard that, and I'm
02:18:54 10 using this quote here on this document, that
02:19:00 11 Philip Morris is, quote, driven by refractive --
02:19:02 12 the refractive index measure?

:19:14 13 A. No, I have not.

02:19:22 14 Q. Do you know in the RL process how
02:19:30 15 Philip Morris determines the quantity of liquor
02:19:34 16 to apply to the cellulosic materials?

02:19:36 17 A. No, I don't.

02:19:50 18 Q. Do you know whether in the RL process
02:19:52 19 the raw materials are measured for their soluble
02:19:54 20 content?

02:19:58 21 A. No, I don't.

02:20:04 22 Q. Do you know whether the finished
02:20:06 23 sheet at Park 500 is measured for its soluble
02:20:08 24 content?

:20:14 25 A. I don't know as an absolute fact that

2058452018

Knudson - Highly Confidential - Trade Secret

that occurs. I have reason to believe based on conversations that I've heard that there must be some measurement made of that characteristic.

Q. When we were talking earlier about your general understanding of the term "solubles," and we focused on an early stage in the process when the solubles are separated from the fibrous material, and you mentioned that among those solubles were sugars, nicotine, and then other compounds, your earlier testimony had been that the constituencies of the solubles changes during the course of the RL process. I'm paraphrasing your testimony.

Tell me what other constituencies of solubles, other than those you've mentioned, appear at any later point in the RL process.

MR. MURPHY: I object to the form of the question. I think, Alex, as asked, that's almost unanswerable. The witness has already testified that he doesn't know all of the constituencies of this process or of the solubles even at the initial point that you described.

MR. ROGERS: I'm not asking whether he knows all the constituencies. All I'm trying

2058452019

Knudson - Highly Confidential - Trade Secret

to identify is whether he knows of other
constituencies that, for whatever reason, are in
the solubles at a point later than that which he
described the sugars, the nicotine and other
compounds being present.

MR. MURPHY: With that clarification,
if you understand the question, you can answer
the question.

A. I think the easiest way to answer the
question is to go to the extreme end of the
process as far as the soluble stream goes, and
say that that soluble stream that is reapplied to
the base web has been added to by the flavor
systems that are added to that.

It has had the nitrate removed. And
it has had the -- it has gone through a
concentration effect which has caused a reduction
in water, and presumably a reduction in some or
all of the other compounds that were in it when
it went through that concentration phase.

I have no understanding of the
details of any of those, quote, concentrations
that occur.

Q. Under the category of flavor systems

MANHATTAN REPORTING CORP.

2058452020

Knudson - Highly Confidential - Trade Secret

as you've described them, can you think of any specific flavors in either the RLB or the RLTC that would be a part of this soluble stream?

A. What I am familiar with is that the RLTC is sometimes referred to as a cooked flavor product. There is some set of constituents that I'm not familiar with that constitute this cooked flavor, that are combined with the concentrated soluble stream. And that is the post nitrate removal concentrated stream.

In the case of RLB, I'm not aware of the total flavor system that is utilized. I do know that two of the constituents that are utilized are diammonium phosphate and urea.

And I should correct that. There was a period of time where I knew that to be the case. Because I don't look at those flavor systems with any regularity or have any reason to, I can only say that was the case at a time back in the late 1980s.

Q. I'm not sure I understand that last part of your answer. And I'll just read it to you. "There was a period of time where I knew that to be the case. Because I don't look at

Knudson - Highly Confidential - Trade Secret

02:25:00 those flavor systems with any regularity" -- to
02:25:02 what were you referring with respect to the word
02:25:06 "that"? The diammonium phosphate and the urea?

02:25:08 A. When I characterized I was aware of
02:25:10 two of the constituents used in the RLB flavor
02:25:14 system, those being diammonium phosphate and
02:25:18 urea, that in order to be perfectly clear, what I
02:25:20 needed to clarify was that since I don't work in
02:25:22 that area with any regularity, what I'm not sure
02:25:26 of is the changes ~~that~~^{they} may have occurred and ~~that~~
02:25:28 may or may not continue to be in that flavor
:25:28 system.

02:25:34 Q. In the late 1980s, were you working
02:25:38 on a specific project that involved the
02:25:40 diammonium phosphate and/or the urea?

02:25:44 A. No. I characterize it that way
02:25:46 because during the time that I was in R&D and had
02:25:52 the -- as one of the areas within my
02:26:00 organization, the RL pilot plant, there was I
02:26:04 think sufficient familiarity with the flavor
02:26:08 systems, and any work that would have been done
02:26:10 would have probably been done through the pilot
02:26:14 plant initially, such that had there been changes
:26:20 occurring in that time frame, I probably would

MANHATTAN REPORTING CORP.

2058452022

Knudson - Highly Confidential - Trade Secret

02:26:20 have been familiar with them.

02:26:22 Q. Can you recall any specific flavor
02:26:24 projects in this pilot plant?

02:26:28 MR. MURPHY: I object to the form.
02:26:28 You can answer.

02:26:40 A. My recollection was that for a period
02:26:48 of probably years, there were continuing efforts
02:26:58 to look at the ability to produce RL, which had
02:27:08 flavor characteristics similar to BL. The RLB
02:27:14 flavor system is an approximation of that, but
02:27:22 not necessarily an identical -- subjectively
:27:26 identical product.

02:27:28 Q. What were the flavor characteristics
02:27:34 of BL that you were seeking to obtain in the
02:27:36 production of RL that you've just referred to?

02:27:38 MR. MURPHY: I object to the form of
02:27:40 the question. You can answer.

02:27:46 A. Since I have never considered myself
02:27:52 a subjective expert, I would be remiss to try and
02:27:54 represent what it was that we were trying to
02:28:00 accomplish there, and where we were successful or
02:28:04 where we were deficient. I was simply aware that
02:28:08 that was an ongoing project, to try and achieve a
:28:10 subjective parity.

MANHATTAN REPORTING CORP.

2058452023

Knudson - Highly Confidential - Trade Secret

02:28:16 Q. Would you describe the RL at this
02:28:20 time, then, as subjectively inferior to the BL in
02:28:22 terms of flavor?

02:28:32 A. I don't think that we would have
02:28:38 described any of the RL sheets as inferior. That
02:28:40 is, when I say "any," depending on which flavor
02:28:44 configuration was being used, I had different
02:28:48 nomenclatures. They were simply different.

02:29:02 Q. What did you mean by the term
02:29:06 "subjective parity"?

02:29:12 A. That in a subjective evaluation at a
:29:18 given level in a blend, that a subjective panel
02:29:24 would be unable to determine whether or not the
02:29:30 product being used was the BL product or this,
02:29:32 quote, BL-like RL.

02:29:44 Q. I see. So is it fair to characterize
02:29:50 this project then as to produce an RL that tasted
02:29:50 like BL?

02:29:52 MR. MURPHY: I object to the form.
02:29:52 You can answer.

02:30:06 A. The purpose of the project was to
02:30:12 produce an RL that was subjectively
02:30:18 ^{not differentiable}
~~nondifferentiable~~ from the BL product being
:30:18 produced.

2058452024

1 Knudson - Highly Confidential - Trade Secret

02:30:24 2 Q. Do you know whether that objective
02:30:26 3 was ever achieved?

02:30:32 4 A. During the time that I was there, I
02:30:36 5 don't believe we've ever felt that we were 100
02:30:38 6 percent successful in that venture.

02:30:46 7 Q. Do you recall what specific either
02:30:50 8 flavors or process changes were tested so as to
02:30:52 9 attempt to achieve this objective?

02:30:56 10 A. No, I really don't recall.

11 (Knudson Exhibit 5 for
12 identification, meeting minutes, 11/22/83.)

:32:26 13 Q. Mr. Knudson, you've just been handed
02:32:30 14 what's been marked as Knudson Exhibit 5, which is
02:32:34 15 a document, on the top of which appears the line
02:32:40 16 "Meeting minutes, 11/22/83." The Bates stamp
02:32:48 17 numbers are PA 368695 to PA 368697. The
02:32:48 18 corresponding Philip Morris production numbers
02:33:00 19 are 2031158539 to 2031158541.

02:33:02 20 Right on the top of the first page is
02:33:06 21 a line, ^{Topic:} ~~Topic~~ making RL subjectively equivalent
02:33:12 22 to RCB." And there's a list of attendees of a
02:33:14 23 meeting, and your name appears as the second
02:33:22 24 attendee.

:33:24 25 The reference to RCB in the first

MANHATTAN REPORTING CORP.

2058452025

Knudson - Highly Confidential - Trade Secret

02:33:28 line, do you understand that to be BL?

02:33:28 A. Yes.

02:33:32 Q. Do you recall this meeting on
02:33:36 November 22nd, 1983?

02:33:38 A. No, I don't have any recollection of
02:33:38 this particular meeting.

02:33:40 Q. Have you ever seen this document
02:33:42 before?

02:33:44 A. I don't have any recollection of it,
02:33:50 but I in all likelihood, since I was an attendee
02:33:54 to this meeting, was in fact copied on this as an
:33:56 attendee.

02:33:58 Q. And looking at the names of the other
02:34:02 attendees, are those the people that were working
02:34:04 with you on this project that you've just been
02:34:08 describing with respect to making RL subjectively
02:34:10 equivalent to BL?

02:34:14 A. To clarify the working relationship
02:34:20 here, this is a project that would have been
02:34:28 worked on by certain people in my organization,
02:34:30 in this time frame.

02:34:32 This would be the time frame when I
02:34:34 was ^athe manager of the tobacco materials
:34:42 division. So that group that I described of ^athe²

MANHATTAN REPORTING CORP.

2058452026

Knudson - Highly Confidential - Trade Secret

02:34:44 couple of engineers working with the C pilot
02:34:46 plant would have been the people from my
02:34:50 organization involved in this activity.

02:34:52 Some of the other names on here are
02:35:02 people from other areas of the product
02:35:04 development organization who would have been
02:35:08 working with the flavor side, and we would have
02:35:10 been a test vehicle in the pilot plant for that
02:35:14 development work.

02:35:26 Q. At this time, November 22nd, 1983, do
02:35:28 you know what, looking at the first name, G.

:35:32 Keritsis, and I may be mispronouncing that, do
02:35:34 you know what his position or her position was?

02:35:56 A. Gus Keritsis was a -- Gus was a
02:35:58 professional on the technical ladder. What I
02:36:02 hesitate to do is to enumerate exactly what his
02:36:06 position was. Were I to say that he was a senior
02:36:10 professional on the technical ladder, my one
02:36:12 caution there is that that might in fact have
02:36:18 been an official title on the ladder, and that's
02:36:18 not what I mean to imply.

02:36:20 I truthfully can't recall whether Gus
02:36:22 was classified as a scientist or an engineer, and
:36:24 whether his title would have been senior

Knudson - Highly Confidential - Trade Secret

02:36:28 2 scientist, senior engineer, associate principal
02:36:30 3 scientist, associate principal engineer,
02:36:30 4 whatever.

02:36:34 5 Q. You've mentioned the term "technical
02:36:36 6 ladder" before. What is the technical ladder?

02:36:44 7 A. The technical ladder^{is a} -- how do I
02:36:48 8 describe it? It's basically the structure in
02:36:56 9 which nonmanagement personnel are able to pursue
02:37:00 10 a career development pathway which allows them to
02:37:08 11 take on greater and greater responsibilities and
02:37:14 12 be appropriately compensated and recognized.

:37:18 13 It is quite typical in certain types
02:37:20 14 of technical or research and development
02:37:24 15 organizations to have what's referred to as a
02:37:24 16 technical ladder.

02:37:28 17 Q. When you referred to "technical
02:37:30 18 ladder," did you mean exclusive to the research
02:37:32 19 and development department?

02:37:34 20 A. That's the context that I've been
02:37:36 21 using it in here.

02:37:40 22 Q. Are there any other technical ladders
02:37:40 23 at Philip Morris?

02:37:42 24 A. I believe that there is a technical
:37:44 25 ladder within the engineering organization that

MANHATTAN REPORTING CORP.

2058452028

1 Knudson - Highly Confidential - Trade Secret
02:37:48 2 represents a progression that an engineer could
02:37:56 3 go through from his or her initial, say, junior
02:38:00 4 position, to positions of greater
02:38:02 5 responsibility.

02:38:04 6 Q. What's the highest rung on the
02:38:06 7 technical ladder in the research and development
02:38:06 8 department?

02:38:18 9 A. The -- for a significant period of
02:38:24 10 time, the highest rung on the technical ladder
02:38:30 11 was principal scientist or principal engineer.
02:38:38 12 What I'm not sure of is that in -- sometime in
:38:42 13 the mid-80s, a singular position was created, or
02:38:44 14 what I at least understood to be a singular
02:38:52 15 position, titled "research fellow."

02:38:56 16 Subsequent to my leaving R&D, I
02:39:02 17 believe that that title may have been expanded
02:39:04 18 upon; that is, that there might have been a
02:39:06 19 development fellow at one point in time. I don't
02:39:10 20 know whether those titles still exist and I don't
02:39:10 21 know whether they were ever considered to be part
02:39:12 22 of the technical ladder.

02:39:16 23 Q. Let's turn back to Knudson Exhibit 5
02:39:24 24 here. And still on that first page, there are
:39:26 25 two paragraphs under the subheading "Objective,"

Knudson - Highly Confidential - Trade Secret

and I'll just read them.

"The objective of the program is to produce a sheet product at Park 500 that is subjectively equivalent to RCB. This sheet would be produced on one line and would provide a sheet product mix that is more typical of past blends and which is more subjectively acceptable worldwide. The uneconomic alternate is expansion of RCB production capacity with decreased usage of existing Park 500 facilities.

"In order to achieve true parity with past sheet blends it may be necessary to convert the remaining RL production to a flavor system similar to 150-B. The present TC flavor is regarded as 'tobacco-like,' while 150-B was more like RCB."

Let's go back up to that first paragraph. The second sentence, "This sheet would be produced on one line and would provide a sheet product mix that is more typical of past blends and which is more subjectively acceptable worldwide," what do you understand the reference to "subjectively acceptable worldwide" to mean?

A. I'm not sure at this point in time

Knudson - Highly Confidential - Trade Secret

02:40:44 2 that I have a recollection as to what that
02:40:44 3 reference means.

02:40:54 4 Q. Is it your understanding at the time
of this meeting
02:40:58 5 ~~this was written~~, November of 1983, that the
02:41:06 6 sheet product at Park 500 was sold both
02:41:10 7 domestically and overseas, the same type of sheet
02:41:14 8 product, naming the same formula?

02:41:14 9 MR. MURPHY: I object to the form of
02:41:16 10 the question. I also think we're treading on the
02:41:18 11 judge's limitation with respect to export
02:41:22 12 product. But I'll let him answer this question.

:41:30 13 A. It is my recollection that at some
02:41:32 14 point in time, and I'm not sure for what
02:41:38 15 duration, i.e. when it started, when it stopped,
02:41:42 16 if it stopped, that there has been a market for
02:41:50 17 some quantity of RL sheet outside of the U.S.,
02:41:54 18 and that that -- that at least some of that
02:42:16 19 volume was supplied by Park 500.

02:42:18 20 Q. The reference here to "subjectively
02:42:20 21 acceptable worldwide," I understand that sitting
02:42:24 22 here today you don't have specific recollection.
02:42:28 23 Is it possible that the sheet that was being
02:42:30 24 produced at this time was acceptable in one
:42:34 25 market, for instance the domestic market, and

2058452031

MANHATTAN REPORTING CORP.

1 Knudson - Highly Confidential - Trade Secret

02:42:38 2 subjectively unacceptable in a different market,
02:42:40 3 say, an international market?

02:42:40 4 MR. MURPHY: I object to the form of
02:42:42 5 the question. And I'm directing the witness that
02:42:46 6 he should not answer questions with respect to
02:42:48 7 export product. I will, however, let him answer
02:42:50 8 the narrower question that I believe you've
02:42:52 9 asked.

02:42:54 10 MR. ROGERS: I'm not sure that I
02:42:56 11 understand your objection. Are you instructing
02:43:00 12 the witness not to answer my question?

:43:00 13 MR. MURPHY: No.

02:43:08 14 A. What is the question?

02:43:10 15 MR. MURPHY: I think, Alex, if you
02:43:14 16 can read back the question that you have pending,
02:43:16 17 I'm prepared to let him answer that question,
02:43:20 18 subject to and without waiving our position in
02:43:26 19 this litigation based upon the judge's December
02:43:28 20 30 ruling that what is at issue here is RL sheet
02:43:30 21 manufactured and sold as a component of or in
02:43:32 22 domestic cigarette product.

02:43:34 23 The narrower question you asked,
02:43:36 24 which I think treads upon the issue of export
:43:40 25 product, but which is framed so as to try to

2058452032

Knudson - Highly Confidential - Trade Secret

avoid a general inquiry into export product, is I think an effort to ask an appropriate question, and if the witness understands and is able to answer the question, I'm prepared to let him do that on a no waiver basis.

MR. ROGERS: Why don't I then, based upon your statement, read back the question that I had originally asked.

Q. Is it possible, and I'm referring, again, ^{here} to this reference to "subjectively acceptable worldwide," is it possible that the sheet that was being produced at this time was acceptable in one market, for instance the domestic market, and subjectively unacceptable in a different market, say, an international market?

MR. MURPHY: And I object to the form of the question as well. But you can answer the question.

A. I wouldn't have any basis for knowing how to even answer the question.

Q. In the second paragraph of this objective statement here with respect to the meeting minutes, there's a reference to TC

MANHATTAN REPORTING CORP.

2058452033

Knudson - Highly Confidential - Trade Secret

02:44:50 2 flavor, the present TC flavor. Do you know what
02:44:52 3 that means, TC flavor?

02:44:56 4 MR. MURPHY: Objection to form. You
02:44:58 5 can answer the question.

02:45:08 6 A. I believe that the TC flavor was
02:45:16 7 either a predecessor to or is in some way related
02:45:18 8 to the current product or flavor system
02:45:24 9 referenced as the current production product
02:45:26 10 RLTC.

02:45:32 11 Q. Have you ever heard the TC flavor at
02:45:36 12 this time, November of '83, described as, quote,
:45:44 13 tobacco-like?

02:45:46 14 A. Obviously if this kind of discussion
02:45:52 15 occurred in this meeting, then I probably heard
02:45:54 16 some reference to that. I don't have any
02:45:56 17 recollection of it.

02:46:04 18 Q. This final sentence in this section,
02:46:08 19 "The present TC flavors regarded as
02:46:12 20 'tobacco-like,' while 150-B was more like RCB,"
02:46:18 21 have you ever heard RCB described as not
02:46:20 22 tobacco-like?

02:46:22 23 MR. MURPHY: Objection to form. You
02:46:22 24 can answer the question.

:46:26 25 A. No, I don't know that I've heard it

MANHATTAN REPORTING CORP.

2058452034

Knudson - Highly Confidential - Trade Secret

described as not tobacco-like. Just potentially different from some of the RL products.

Q. Have you ever heard the expression "tobacco-like"?

A. Obviously "tobacco-like" probably was an expression that was used with fair frequency in discussing any number of things, whether it dealt with flavor systems or aroma notes or anything else.

Q. And based on your recollection of this project, and looking at this document today, if something -- the description of something as tobacco-like, would that be subjectively acceptable or subjectively unacceptable?

MR. MURPHY: I object to the form of the question. I think it's argumentative. The witness can answer the question.

Q. Do you understand what I'm asking?

A. No, I'm not sure I do. The whole area of subjectives is just that, a very subjective arena. And I'm not a subjective expert.

Q. I understand that. I'm simply trying to understand a reference in this document. I

Knudson - Highly Confidential - Trade Secret

02:47:52 2 don't mean to be argumentative. It appears to
02:47:54 3 me, and correct me if I'm wrong, that there is
02:47:58 4 not subjective parity at this time between the RL
02:48:02 5 and the RCB. And there's an effort made to make
02:48:06 6 the RL subjectively equivalent to RCB.

02:48:08 7 MR. MURPHY: I object to the form of
02:48:12 8 the question. Counsel is testifying. I think
02:48:14 9 that the witness can answer the question if he
02:48:18 10 understands what he's being asked, but I think
02:48:20 11 that it's an improper question as framed.
02:48:26 12 Indeed, it's not even a question as framed.

:48:28 13 MR. KILLORY: He hasn't gotten to the
02:48:30 14 question yet.

02:48:30 15 MR. ROGERS: You made your objection
02:48:32 16 before I ^{did in fact} ~~ever did~~ get to the question. I was
02:48:34 17 simply laying the groundwork for the question,
02:48:38 18 and I hadn't gotten to it yet.

02:48:38 19 MR. MURPHY: I apologize.

02:48:44 20 Q. Let me return to my quick summary,
02:48:46 21 and again, if I've got something wrong, you
02:48:48 22 correct me. This is an effort to make RL
02:48:52 23 subjectively equivalent to RCB. So there is an
02:48:54 24 absence of what you referred to as subjective
:48:58 25 parity. And there is a reference here in this

2058452036

1 Knudson - Highly Confidential - Trade Secret
02:49:04 2 document describing a meeting that you attended
02:49:08 3 of, quote, tobacco-like flavor.

02:49:12 4 And that flavor is a flavor in RL,
02:49:16 5 not in RCB. And so what I'm trying to understand
02:49:20 6 is what the reference to "tobacco-like" means
02:49:26 7 with respect to the subjective differences of RL
02:49:28 8 and RCB.

02:49:30 9 MR. MURPHY: Objection. Asked and
02:49:32 10 answered. And the witness's testimony speaks for
02:49:34 11 itself. You can answer again if you want.

02:49:42 12 A. I'm not sure what more I can add to
:49:44 13 this. If we were to go back in testimony to
02:49:48 14 before this document was introduced, and you had
02:49:52 15 posed a question as to my recollection, and I
02:49:58 16 pointed out that the one recollection that I did
02:50:00 17 have was around work to try and develop a flavor
02:50:06 18 system for RL, not necessarily to be used for all
02:50:08 19 of the RL production, but for at least some
02:50:12 20 portion of production, that would allow it to
02:50:14 21 achieve a subjective parity, as measured by a
02:50:20 22 panel, with RCB.

02:50:22 23 Unfortunately, in the arena of
02:50:26 24 subjectives, a lot of these terms and
:50:30 25 terminologies that get used, tobacco-like,

2058452037

Knudson - Highly Confidential - Trade Secret

02:50:34 2 nontobacco-like, whatever the term might be, may
02:50:38 3 mean something to either the author or the
02:50:44 4 individual who said it, but don't necessarily
02:50:46 5 create the same connotation for everybody
02:50:50 6 involved in a meeting or subsequently reading the
02:50:52 7 document or being asked to recall something from
02:50:56 8 a number of years ago.

02:51:30 9 Q. To your knowledge, November '83, had
02:51:36 10 150-B been used as a flavor in RL?

02:51:44 11 A. I don't -- I do not recall whether
02:51:48 12 150-B was in active use as a flavor at that point
:51:48 13 in time or not.

02:51:50 14 MR. MURPHY: And by "active use," you
02:51:52 15 mean in commercial product?

02:51:54 16 THE WITNESS: In commercial product.

02:52:02 17 Q. Did this project, and by that I mean
02:52:06 18 making RL subjectively equivalent to RCB, lead to
02:52:08 19 the development of 150-B and its use in
02:52:10 20 commercial product?

02:52:12 21 MR. MURPHY: Objection to form. You
02:52:14 22 can answer.

02:52:18 23 A. Not knowing whether 150-B was already
02:52:24 24 developed and in use, or whether this was at some
:52:28 25 stage of its development, and whether 150-B

MANHATTAN REPORTING CORP.

2058452038

Knudson - Highly Confidential - Trade Secret

underwent any other changes, I simply can't recall at this time.

Q. Let's stay^{still} on that first page. And the next paragraph, there is -- the next subheading is "Process," and the first sentence reads, "RL coating is not a requirement but coating technology is available for use if required to meet the objective."

What is RL coating?

A. To the best of my recollection that was a concept of adding small tobacco particles to a -- to the RL product, which if I remember correctly was intended to occur at the point in time immediately after or in close proximity to after the application of the size, that is, the recombination of the solubles and flavor system to the base web.

Q. Do you recall what those small tobacco particles were?

A. My recollection is that that was a portion of the feedstock that went into the process, that was deemed to be the least contributory in terms of having a low yield in the process.

Knudson - Highly Confidential - Trade Secret

02:54:24 Q. What do you mean by "having a low
02:54:24 yield in the process"?

02:54:26 A. Before I answer that question, let me
02:54:30 go back, because obviously our memories play
02:54:38 tricks on us. In an effort to try and answer
02:54:40 your questions here on RL coating, I think I've
02:54:42 probably stretched the limits of my memory as I
02:54:46 think more about the coating process.

02:54:48 The coating process may have in fact
02:54:56 been an alternative to the current sizing
02:54:58 process, and it might have involved the
:55:02 combination of the small tobacco particles with
02:55:08 the existing solubles and flavor package, and
02:55:12 adding those all back simultaneously as opposed
02:55:12 to a second step.

02:55:20 Q. What did you mean in your prior
02:55:24 answer by the term "having a low yield in the
02:55:26 process"? And that reference was to the small
02:55:28 tobacco particles.

02:55:40 A. To my recollection, the very fine
02:55:48 tobacco particles that represent some portion of
02:55:52 the feedstock going into the RL process were
02:55:58 believed to be the biggest contributor to fiber
:56:04 loss in the movement of the cellulosic stream

2058452040

MANHATTAN REPORTING CORP.

Knudson - Highly Confidential - Trade Secret

through the process.

An extremely difficult proposition to prove, that that was in fact the source of the yield loss. But it was always the subject of some supposition, and the assumption was that by taking that small tobacco and adding it back at a point in time where it might not be lost, that one could improve the yield of the process.

Q. So by "yield loss," you mean fiber loss?

A. That would be my understanding, yes. Again, it wasn't an area that I worked in. It's just an area that I have some recollection of.

Q. Is there anything else that would contribute to yield loss other than fiber loss?

A. Oh, I think there are any number of things in any process that could contribute to yield loss. I'm not familiar enough with the process to be able to enumerate all the things that could contribute to yield loss, either on the cellulosic side or on the soluble side.

Q. Is it your understanding that RL coating has been used in RL sheet produced for commercial production and sale in the United

Knudson - Highly Confidential - Trade Secret

States?

A. I don't have any recollection as to whether that's a true statement or not.

MR. MURPHY: Are we at a good breaking point?

MR. ROGERS: About five minutes.

MR. MURPHY: That's fine.

Q. If you'll turn to the next page, please, Mr. Knudson, and I'm on PA 368696, there's a number 3, and then there are two paragraphs. Just to save time I'll simply go to the final paragraph, which reads as follows.

"It has been determined that DAP (not just ammonia and cooking) are required to achieve RCB character."

The reference here to DAP, do you understand that to mean the diammonium phosphate to which you referred earlier?

A. Yes, that would be a typical vernacular to use when referring to diammonium phosphate.

Q. And what's the difference between DAP and ammonia?

A. DAP is a white crystalline material,

MANHATTAN REPORTING CORP.

2058452042

1 Knudson - Highly Confidential - Trade Secret
02:58:58 2 and ammonia is a liquid.

02:59:20 3 Q. Does DAP fall within the definition
02:59:22 4 of ammonia? Is DAP an ammonia, is what I'm
02:59:24 5 asking.

02:59:30 6 A. DAP is a compound that contains
02:59:32 7 ammonia.

02:59:44 8 Q. Do you know whether DAP is added to
02:59:46 9 RL sheet?

02:59:50 10 A. As I stated previously --

02:59:52 11 MR. MURPHY: Time frame?

02:59:54 12 MR. ROGERS: As of March '94. I'm
:59:58 13 comfortable with that.

03:00:00 14 A. As I stated previously, in the time
03:00:06 15 frame of the middle to late '80s, it is my
03:00:10 16 recollection that diammonium phosphate is in fact
03:00:18 17 used in the flavor system referred to as the
03:00:22 18 flavor system that produces the product RLB.

03:00:24 19 MR. ROGERS: Why don't we take a
03:00:26 20 break now.

03:00:28 21 THE VIDEO OPERATOR: We're going off
03:00:32 22 the record. The time on the screen is 3:00:30.

03:00:34 23 (A recess was taken.)

03:27:22 24 THE VIDEO OPERATOR: This is
:27:26 25 videotape number 3, the continuation of the

2058452043

Knudson - Highly Confidential - Trade Secret

03:27:30 deposition of Mr. Knudson. The time on the
03:27:32 screen -- today is July 12th, 1995. The time on
03:27:36 the screen is 3:27:35. You're on the record.

03:27:40 Q. Mr. Knudson, just prior to the break,
03:27:44 we were talking about diammonium phosphate. And
03:27:48 I'll just read you your last answer, and then
03:27:50 we'll pick up from there.

03:27:52 My question was, "As of March 1994,
03:27:56 do you know whether DAP is added to RL sheet?"
03:27:58 And your answer was, "As I stated previously, in
03:28:02 the time frame of the middle to late '80s, it's
:28:04 my recollection that diammonium phosphate is in
03:28:08 fact used in the flavor system referred to as the
03:28:10 flavor system that produces the product RLB."

03:28:18 Do you know why DAP is added?

03:28:20 MR. MURPHY: I object to the form.
03:28:20 You can answer the question.

03:28:36 A. I believe that DAP is utilized, since
03:28:40 it is a constituent in the BL process, that it's
03:28:46 utilized in order to provide some of the same
03:28:48 subjective character.

03:28:50 Q. Do you know why the DAP is used in
03:28:52 the BL process?

:29:04 A. The utilization of DAP and ammonia in

MANHATTAN REPORTING CORP.

2058452044

Knudson - Highly Confidential - Trade Secret

the BL process are part of the process chemistry associated with the release of the naturally occurring pectin in tobacco to allow the pectin to be released, and subsequently in the drying process, to reform, to bind the sheet together.

Q. What is pectin?

A. I don't know that I can answer that question at any technical level. My understanding is that pectin is a naturally occurring constituent in a lot of vegetative products that plays a binding role. I know that my wife uses pectins in making jellies.

Q. Does the DAP facilitate the binding of the sheet in the BL process?

MR. MURPHY: Objection to form. You can answer the question.

A. I have to admit that my recollection of the process chemistry is quite vague at this point in time. There was a point in time early in my time with Philip Morris where I was relatively familiar with the process chemistry of the BL process.

But my basic recollection is that the role of the DAP and the ammonia are to create a

Knudson - Highly Confidential - Trade Secret

circumstance wherein the tobacco slurry, the pectin, is liberated.

So it plays a role in the liberation of the pectin, and then it is the drying process that results in the reaction in which the reaction is driven back in the other direction and the pectin reforms as a binder.

Q. Is there liberation of the pectin in the RL process?

A. Not to the best of my knowledge.

Q. And you described the pectin being reformed as a binder in the drying process. Does that process occur in the RL process?

A. Not to the best of my knowledge.

Q. In the BL process, other than the descriptions you've just given, is there any other reason why DAP and ammonia are added?

MR. MURPHY: I object to the form. You can answer.

A. Not to the best of my knowledge.

Q. And your understanding, returning to Knudson 5, and the page 2, the determination that DAP and cooking are required to achieve RCB character, is it your understanding here that the

MANHATTAN REPORTING CORP.

2058452046

Knudson - Highly Confidential - Trade Secret

03:32:54 DAP would serve to improve the flavor of the RL?

03:33:06 A. That would be my understanding. I
03:33:12 should add a clarification to that. When we say
03:33:18 "improve the flavor," it's probably more
03:33:22 accurate to say move the flavor in a targeted
03:33:26 direction wherein that target was to make that
03:33:30 product more subjectively like RCB.

03:33:48 Q. Is DAP a base?

03:33:56 A. I ^{truthfully} ~~truly~~ don't know whether DAP is
03:34:02 acidic, basic or neutral.

03:34:04 Q. Do you know whether DAP increases or
:34:06 decreases the pH level?

03:34:10 A. I'm not sure I know the answer.

03:34:44 Q. Are you familiar with the term
03:34:48 "subjective impact" as it describes a cigarette
03:34:50 or tobacco?

03:34:50 MR. MURPHY: I object to the form of
03:34:52 the question. I think it's vague. You can
03:34:54 answer the question if you understand how the
03:34:54 terminology is being used.

03:35:00 A. As I stated before, I don't consider
03:35:04 myself to be a subjective expert. As I also
03:35:08 stated, a number of terms are used by different
:35:16 people to potentially have different meanings. I

MANHATTAN REPORTING CORP.

2058452047

1 Knudson - Highly Confidential - Trade Secret

03:35:24 2 have heard the terminology "subjective impact"
03:35:24 3 used.

03:35:26 4 As used by different people, it has
03:35:30 5 the potential to mean different things.

03:35:34 6 Q. In those instances in which you've
03:35:36 7 heard the terminology, "subjective impact," what
03:35:38 8 did you understand it to mean?

03:35:40 9 MR. MURPHY: Objection as to form.
03:35:42 10 Asked and answered. You can answer again.

03:35:58 11 A. I believe that to my way of thinking,
03:36:06 12 when I have heard the term "subjective impact," I
:36:10 13 have generally thought of it in the broadest
03:36:18 14 nomenclature, which would be an assessment as to
03:36:24 15 whether or not, for instance, in the case of the
03:36:32 16 arena that we've been speaking of, the movement
03:36:40 17 of a product in the direction it was being
03:36:44 18 targeted to subjectively, that the subjective
03:36:50 19 impact was in that direction or not in that
03:36:50 20 direction.

03:36:54 21 So it becomes a very broad kind of
03:36:56 22 all-inclusive bit of terminology.

23 (Knudson Exhibit 6 for
24 identification, Annual report, applied
25 technology, 1982-1983.)

MANHATTAN REPORTING CORP.

2058452048

1 Knudson - Highly Confidential - Trade Secret

03:37:44 2 Q. Mr. Knudson, you've just been handed
03:37:46 3 what's been marked Knudson Exhibit 6, the cover
03:37:50 4 page of which says, "Annual report, applied
03:37:56 5 technology, 1982-1983," and there's a signature
03:38:00 6 line and a signature for Peter Martin. The Bates
03:38:06 7 stamps numbers are PA 828568 to PA 828609. The
03:38:14 8 Philip Morris numbers are 1000411651 to
03:38:18 9 1000411692.

03:38:22 10 And if you'll turn to the second page
03:38:28 11 of the document, PA 828569, you'll see what
03:38:30 12 appears to be a cover page for a research
:38:36 13 project. The charge number and title is "2106
03:38:40 14 applied technology." And still on that page
03:38:42 15 there's a distribution list, and if you look on
03:38:48 16 the first column, the second to last name is D.
03:38:48 17 B. Knudson.

03:38:50 18 Is that you?

03:38:50 19 A. Yes, sir.

03:38:56 20 Q. Do you recall the applied technology
03:38:58 21 project?

03:39:00 22 A. No, I really don't have any
03:39:06 23 recollection. What you see here is the report
03:39:16 24 that I suspect was copied to directors and
:39:20 25 managers across the R&D center as a courtesy, for

2058452049

MANHATTAN REPORTING CORP.

Knudson - Highly Confidential - Trade Secret

03:39:22 their awareness.

03:39:24 Q. Do you know who Peter Martin is?

03:39:26 A. Yes, I know Peter Martin.

03:39:28 Q. At the date of this report, February
03:39:32 21, 1983, do you know what his position was at
03:39:34 Philip Morris?

03:39:36 A. No, I do not. I don't recall what
03:39:36 his position was at that time.

03:39:42 Q. Do you recall what positions he's
03:39:44 held at Philip Morris?

03:39:50 A. I certainly don't recall all the
:39:56 positions that Peter has held. There was a brief
03:40:04 period of time where he served -- when I was the
03:40:10 director of process development, and had -- we
03:40:14 had undergone some changes in organization.

03:40:16 I believe there was a brief period of
03:40:20 time measurable in months when he actually came
03:40:24 in and managed one of the divisions within my
03:40:26 organization. That would have been considerably
03:40:28 subsequent to this.

03:40:34 Q. At this time frame, February of 1983,
03:40:36 am I correct that you were serving as the manager
03:40:38 of the tobacco materials group?

:40:44 A. No, I believe in February of 1983 I

MANHATTAN REPORTING CORP.

2058452050

Knudson - Highly Confidential - Trade Secret

still would have been the manager of the
Semi-Works.

Q. What is Semi-Works?

A. Semi-Works is a pilot plant facility
designed to emulate a primary process, and also
to include a make pack area.

Q. What is a make pack area?

A. It's an area where the actual
fabrication of cigarettes and subsequent packing
occurs.

Q. Turning back to Knudson Exhibit 6, do
you recall receiving this annual report?

MR. MURPHY: Do you want the witness
to read this?

MR. ROGERS: Just simply from looking
at the -- glancing through it. We'll go through
some of the specific sections. I don't think
it's necessary to read the whole thing.

Q. I'm just trying to see if you recall
ever receiving this document.

A. I don't recall receiving it. The
fact that I'm on distribution in all probability
means that I did receive it. At the time, given
my area of responsibility, in general, on receipt

MANHATTAN REPORTING CORP.

2058452051

Knudson - Highly Confidential - Trade Secret

of a document like this, I would have taken a quick glance to see what the contents of the document were.

And if I felt like there was anything in here that had potential application to the area I was responsible for, I would have explored the document further.

Based on looking at the -- just glancing through the abstract page, my guess is that there's not much in here that would have been pertinent to my role as manager of the Semi-Works. And as such, I would have not bothered to read the document to any significant degree.

Q. Why do you think as manager of Semi-Works you would have received a copy of this report?

A. I think it was a standard protocol or courtesy to copy all of the managers within R&D on a number of, quote, project reports that were generated at that time.

Q. Still on the second page, is that the standard cover page for a Philip Morris research report?

1 Knudson - Highly Confidential - Trade Secret

03:43:18 2 MR. MURPHY: What time frame?

03:43:22 3 MR. ROGERS: The early 1980s.

03:43:24 4 A. I believe it is.

03:43:30 5 Q. Is that still the standard form for
03:43:30 6 research documents?

03:43:32 7 MR. MURPHY: I object to the form of
03:43:34 8 the question. I don't think you mean to be
03:43:38 9 vague, Alex, but by "standard form," do you mean
03:43:40 10 that the names on the distribution list change
03:43:42 11 over time, or --

03:43:42 12 MR. ROGERS: No, I simply mean the
:43:46 13 structure of the material, the project number and
03:43:50 14 the project description, the dates, who the
03:43:54 15 author is, who it's been approved by.

03:43:56 16 MR. MURPHY: The format rather than
03:43:58 17 the contents?

03:43:58 18 MR. ROGERS: Exactly.

03:44:00 19 A. I can only say that to my
03:44:04 20 recollection, during the time that I was in R&D,
03:44:10 21 from 1982 through 1989, I don't recall any
03:44:12 22 significant change to this format. I couldn't
03:44:16 23 answer where it has moved subsequently.

03:44:18 24 Q. If you look at the box on the bottom
:44:22 25 of this page, it says, "Key words," and then

Knudson - Highly Confidential - Trade Secret

03:44:26 2 there are a series of terms. Cylinder heat
03:44:28 3 treatment, flavor modification, ammonia
03:44:32 4 treatment, reducing sugar. Do you know why
03:44:34 5 there's a key word box on this research
03:44:36 6 document?

03:44:42 7 A. I would assume it's a method of
03:44:44 8 cross-referencing the information in here.

03:44:48 9 Q. Do you know whether research
03:44:50 10 documents are filed according to key words?

03:44:50 11 A. No, I do not.

03:44:54 12 Q. Is there any way, if you wanted
:44:58 13 access to research documents, that you could
03:45:00 14 search for documents by use of a key word?

03:45:02 15 MR. MURPHY: Time frame?

03:45:06 16 Q. At the time that you were in R&D, '82
03:45:12 17 to '89.

03:45:12 18 A. I don't know whether there was or
03:45:12 19 not.

03:45:18 20 Q. If you'll turn to the abstract that
03:45:24 21 you just referred to a moment ago, I want to turn
03:45:28 22 to the third paragraph. I'll simply read it.

03:45:28 23 "A large number of flavor
03:45:32 24 modifications ^{were} ~~are~~ achieved by processing or
:45:36 25 chemical additions. The treatment of DBC bright

2058452054

Knudson - Highly Confidential - Trade Secret

03:45:38 2 with ammonia or pH adjustment has replicated the
03:45:42 3 burley impact but not the full burley flavor.
03:45:44 4 Flavor and impact of both burley and bright seem
03:45:48 5 to be removed by cold water extraction of the
03:45:50 6 original tobaccos."

03:45:52 7 Do you recall any research at this
03:45:56 8 time on the treatment of DBC bright with
03:46:00 9 ammonia?

03:46:00 10 A. No, I do not.

03:46:02 11 Q. How about any research at this time
03:46:06 12 on pH adjustment of DBC bright?

:46:08 13 A. No, I don't have any recollection of
03:46:10 14 that.

03:46:12 15 Q. Do you know what DBC bright is?

03:46:22 16 A. At one period in time, I believe that
03:46:30 17 DBC was a name applied, ^{to} if you will, ^{the} ~~to the~~
03:46:34 18 standard blend of bright tobaccos used in a
03:46:36 19 number of our products.

03:46:52 20 Q. Your testimony is that at one period
03:46:56 21 of time. Has the name changed, or is DBC still
03:46:56 22 used?

03:47:02 23 A. I don't know whether DBC is still
03:47:06 24 used and whether it means the same thing today or
:47:06 25 not.

MANHATTAN REPORTING CORP.

2058452055

Knudson - Highly Confidential - Trade Secret

03:47:14 Q. Does DBC stand for something in
03:47:14 particular?

03:47:18 A. I believe it does. I recall at some
03:47:24 point in time some conjecture as to whether DBC
03:47:28 stood for designated blend component or some
03:47:32 other combination of words of which DBC would be
03:47:36 an acronym. It wasn't critical to understand
03:47:40 what the acronym meant, so I don't recall what
03:47:42 the actual acronym stood for.

03:47:46 Q. In this paragraph that I've read to
03:47:50 you, there is use of the words "impact" and
:47:52 "flavor" in the same sentence. Do you
03:47:54 understand those two words to mean different
03:47:56 things?

03:47:58 MR. MURPHY: Objection as to form.
03:48:02 You can answer.

03:48:16 A. Reading this now, I would assume that
03:48:20 "flavor" and "impact" were intended to mean two
03:48:24 separate thoughts. I'm not sure what those
03:48:26 thoughts would have been.

03:48:30 Q. Have you ever heard the term "burley
03:48:30 impact"?

03:48:36 A. I'm sure I have.

:48:38 Q. What do you understand the term

2058452056

Knudson - Highly Confidential - Trade Secret

"burley impact" to mean?

A. That burley tobacco is subjectively different from bright tobacco or Oriental tobacco.

Q. In what respects is burley tobacco subjectively different from bright tobacco?

A. Again, I'm not a flavor expert. I'm sure they could -- a flavor expert could very accurately describe the different subjective characteristics or nuances of those products. As a layperson with respect to subjectives, burley and bright and Oriental all have unique subjectives, and I think are discernibly different.

I'm not sure that I could go into any detail in describing what the nuances of those differences are.

Q. Do you know which of those three types of tobacco, burley, bright, and Oriental, has the highest nicotine level?

A. I don't know it as an absolute fact. I have some vague recollection. To answer that question I would be guessing.

Q. Let's turn to page 4 of this Knudson

Knudson - Highly Confidential - Trade Secret

Exhibit 6.

(Witness complies.)

Q. Production number PA 828574. There is a subheading near the top of the page called "Ammonia treatment." I'm going to ask you a few questions about it, so I'll just read through it.

"One of the many differences between bright and burley tobacco is the presence of reducing sugars in bright. One of the results of heat treatment in a closed vessel is to decrease the level of reducing sugars in the sample.

^{The cylinder}
"Cylinder" heat treatment might replicate some of the reactions occurring in the curing process as it maintains high water activity. Preliminary subjective evaluation of heat treated DBC bright assigned it some blended characteristics although the impact remained very low.

"It had been noted from work in the flavor groups and from the BL plant that the presence of ammonia tended to increase the subjective impact of materials. This effect was tested by placing samples of DBC bright in

MANHATTAN REPORTING CORP.

2058452058

Knudson - Highly Confidential - Trade Secret

dessicators with varying quantities of ammonium hydroxide and water.

"After long exposure (several days) the sample was removed, heat treated and made into cigarettes. Machine made cigarettes could not be produced because of the limited mass of processed material.

"Despite these problems the cigarettes had impact similar to burley and were judged quite favorably by some of the panelists. However, several subjects noted the absence of what they considered burley flavor (as opposed to impact) and although it proved possible to optimize the impact by varying the exposure to ammonia, it has proven impossible to produce the complete burley character.

"Similar experiments have been conducted by Harry Lanzillotti and Rett Southwick using other methods to introduce ammonia to the tobacco, but all show similar results." I'll just stop there for a second.

Does this paragraph refresh your recollection about tests to add ammonia for the purposes of increasing subjective impact?

MANHATTAN REPORTING CORP.

2058452059

Knudson - Highly Confidential - Trade Secret

03:53:02 2 MR. MURPHY: I object to the form of
03:53:02 3 the question. You can answer.

03:53:08 4 A. I believe that by going back to the
03:53:12 5 previous page and reading some of the
03:53:18 6 introduction, the suggestion is that the
03:53:22 7 availability of burley tobacco in a worldwide
03:53:30 8 circumstance is not always -- that is, burley
03:53:32 9 tobacco is not always available and not always of
03:53:32 10 good quality.

03:53:38 11 The implication from reading that and
03:53:40 12 this, the conclusion that I would draw at this
:53:44 13 point in time as opposed to anything that I have
03:53:48 14 any recollection of was that this represents work
03:53:52 15 that could well have been carried out as to some
03:53:56 16 alternate way to provide a burley alternative in
03:53:58 17 some worldwide situation.

03:54:06 18 Q. Generally speaking, does burley have
03:54:10 19 higher nicotine content than bright?

03:54:10 20 MR. MURPHY: Objection. Asked and
03:54:10 21 answered.

03:54:14 22 MR. ROGERS: I think I asked a
03:54:16 23 different question before.

03:54:20 24 MR. MURPHY: I don't think in
:54:20 25 substance you did, but I'll let the witness

2058452060

Knudson - Highly Confidential - Trade Secret

answer the question again.

A. I think the answer to the previous question, which I think was perhaps a little broader than this question, still requires the same conjecture on my part. There may have been a time where I had some familiarity with the average nicotine levels in different tobacco types.

I don't have an absolute recollection of what those were and what the rank order of those products were. If you would like for me to guess, I can do that.

MR. MURPHY: I'm going to object, before you continue and have another question pending, Alex, and suggest that if you have questions about this particular section, I think it's really about two pages of this document, that it would be helpful if the witness were given an opportunity to read the whole thing so that he could get the full context of this.

MR. ROGERS: Absolutely.

MR. MURPHY: I won't take the time right now to read it all into the record, although if you have questions about other

MANHATTAN REPORTING CORP.

2058452061

Knudson - Highly Confidential - Trade Secret

sections we can do that as you go.

MR. ROGERS: Sure.

Q. Mr. Knudson, do you want to take a moment to read this section?

A. Yes, please. Thank you.

(Witness complies.)

A. Okay.

Q. Your answer to my prior question about nicotine levels, I'll read your testimony, "There may have been a time where I had some familiarity with the average nicotine levels in different tobacco types."

Are you referring there to a specific time or position that you held at Philip Morris?

A. I would say that during the time that I was in R&D, and probably most particularly during the time that I was involved in the ART process, whose goal was to remove nicotine from tobacco, that I would have had greater reason to have some awareness of the nicotine level in different types of tobaccos.

It's not something that I have retained in memory.

Q. In this portion of the document

Knudson - Highly Confidential - Trade Secret

you've just read, there is a reference at least twice to Harry Lanzillotti. Do you know who that is?

A. I know who Harry Lanzillotti is, yes.

Q. At roughly this time, in February of 1983, do you know what Mr. Lanzillotti's position was?

A. No, I don't. Again, he was, to the best of my recollection, a scientist or engineer on the technical ladder, not in an organization that I was closely associated with. So I would not be able to state what his title was.

Q. In the middle of page 5, roughly halfway down the page, the sentence reads, "Harry Lanzillotti had shown, footnote 5, that the burley impact could^{also} be obtained by adding calcium oxide to raise the pH of the tobacco. Similar impact results have been obtained by adding KOH to the tobacco.

"It appears there is a pH window for satisfactory subjective results and that this window encloses the pH of a typical burley tobacco. It now seems likely that some of the

MANHATTAN REPORTING CORP.

2058452063

Knudson - Highly Confidential - Trade Secret

04:01:18 2 impact of ammoniation arises from the change in
04:01:22 3 pH from that of a typical bright to that of a
04:01:24 4 typical burley. One result of this is that the
04:01:28 5 impact may be controlled by adjusting tobacco
04:01:30 6 pH."

04:01:32 7 Are you familiar with any work that
04:01:38 8 Mr. Lanzillotti has done on controlling pH levels
04:01:38 9 of tobacco?

04:01:42 10 A. No, I'm not.

04:01:44 11 Q. And reading this portion of the
04:01:46 12 document, does that refresh your recollection
:01:56 13 about the effect of pH on burley impact?

04:01:56 14 MR. MURPHY: Objection as to form.
04:01:58 15 Lack of foundation. You can answer.

04:02:04 16 A. I think the only thing that it
04:02:12 17 refreshes is a logical supposition that movement
04:02:18 18 of the pH of bright tobacco to have a pH more
04:02:22 19 similar to burley would increase the probability
04:02:24 20 that that tobacco might be perceived as
04:02:26 21 directionally closer to burley.

04:02:30 22 Q. And the letters KOH, do you know what
04:02:34 23 that stands for?

04:02:36 24 A. I would assume that refers to
:02:36 25 potassium hydroxide.

2058452064

MANHATTAN REPORTING CORP.

Knudson - Highly Confidential - Trade Secret

04:02:42 Q. Is that a base?

04:02:44 A. I believe that is a base.

04:02:48 Q. And does a base increase or decrease
04:02:48 pH level?

04:02:52 A. A base would be expected to increase
04:02:54 pH levels.

04:02:56 Q. And the reference to calcium oxide,
04:02:58 is that a base?

04:03:00 A. I truthfully don't know whether
04:03:02 calcium oxide is a base or not.

04:03:06 MR. MURPHY: I would just read into
:03:06 the record at this point, Alex, the next
04:03:10 sentence, which you declined to read, which
04:03:14 states as follows: "Unfortunately, this cannot
04:03:18 be done without altering some of the other
04:03:22 tobacco properties, i.e. burn rate or potassium
04:03:26 calcium ratio, and so the overall adjustment
04:03:28 problem is still quite difficult."

04:03:34 Q. Does that last sentence that
04:03:36 Mr. Murphy read to you change any of your
04:03:38 testimony, Mr. Knudson?

04:03:40 MR. MURPHY: Objection as to form.
04:03:42 You can answer.

:03:46 A. The testimony that I was giving was

2058452065

MANHATTAN REPORTING CORP.

Knudson - Highly Confidential - Trade Secret

the suppositions that I would draw from reading this document at this time. It's not intended to be reflective of any conclusions that were drawn, because I don't necessarily recall reading the document at any time in the past.

Q. Very well.

(Knudson Exhibit 7 for identification, Basic flavor investigation.)

Q. You've just been handed what's been marked Knudson Exhibit 7, which is a document that describes a project number 2307, project title, "Basic flavor investigation." This particular report title is "Low tar/high flavor literature review."

The Bates stamp numbers are PA 917809 to PA 917851. The corresponding Philip Morris production numbers are 2022178773 to 2022178815. The document appears to be written by Sherman S. Lin, supervised by Robert Hale, Wynn Raymond and Chris Kroustalis, and approved by Howard L. Spielberg.

Are you familiar with the low tar -- excuse me, the basic flavor investigation project that was conducted on or before October 1990?

1 Knudson - Highly Confidential - Trade Secret

04:06:34 2 A. I don't have any recollection of it.

04:06:34 3 Q. Have you ever seen this report you've
04:06:36 4 just been handed?

04:06:36 5 A. I don't have any recollection of
04:06:38 6 seeing this report before.

04:06:42 7 Q. Do you know who Sherman Lin is?

04:06:44 8 A. No, I can't place Sherman Lin. I
04:06:48 9 should note that this report is -- was issued
04:06:52 10 approximately one year after I left R&D.

04:07:08 11 Q. At this time of October 1990, do you
04:07:10 12 know what Howard Spielberg's title was?

:07:10 13 A. No, I don't.

04:07:22 14 Q. If you'll turn to the second page,
04:07:30 15 which is a summary, it's just one page, and I'm
04:07:30 16 going to ask you a few questions about it, so
04:07:34 17 we'll just go through it. I'm quoting.

04:07:38 18 "Smokers smoke cigarettes for the
04:07:40 19 benefits of relaxation, concentration, enjoyment
04:07:42 20 and better management capacity. In the past
04:07:44 21 decades the low tar cigarettes have gained
04:07:48 22 substantial acceptance by the smokers but not the
04:07:52 23 ultralow tar nor the lowest tar categories.

04:07:56 24 "The major problem for ultralow tar
25 and lowest tar cigarettes is their failure in

2058452067

Knudson - Highly Confidential - Trade Secret

meeting smokers' expectation and needs. The cigarettes are generally weaker in smoke impact and tobacco taste and the smoke is thinner and drier than the smoke with higher tar deliveries.

"Among the thousands of compounds identified in cigarette smoke, the single most abundant and important compound is nicotine. Nicotine contributes to the smoker's physiological as well as organoleptical satisfaction. Nicotine in tobacco is partially transferred directly to the smoke and partially decomposed to form amines and pyridines during smoking.

"Nicotine and its decomposition products all contribute to the smoke's sensory properties, particularly the smoke impact. Their sensory properties are influenced by the smoke pH which determines the ratio of free and protonated species of these compounds. Higher smoke pH yields a harsher hence a stronger impact. Lower smoke pH yields a smoother, hence a weaker impact.

"However, a stronger impact does not necessarily yield a more acceptable cigarette.

MANHATTAN REPORTING CORP.

2058452068

Knudson - Highly Confidential - Trade Secret

There seems to be an optimum impact for maximum acceptance at a given tar level."

And then it continues on.

MR. MURPHY: Why don't you read the rest of it. It's a short summary.

MR. ROGERS: Okay. Continuing on in that paragraph, "It appears some of the tar components have a balancing effect on the sensory properties of nicotine and its decomposition products. The sensory interaction between tar and nicotine seems to behave differently at different smoke nicotine levels.

"When the smoke nicotine/tar ratio is at or below half of the natural range, higher tar will yield stronger impact. But when the ratio is at or above the natural range, higher tar will yield a smoother and weaker impact.

"The volatile organic acids in the smoke seem to modify the smoke pH and hence the sensory properties. The acids can be derived either from a direct transfer from tobacco or from precursors present naturally in tobacco or in added flavorings.

"The Maillard reaction during curing,

MANHATTAN REPORTING CORP.

2058452069

1 Knudson - Highly Confidential - Trade Secret
04:10:08 2 primary processing and smoking all seem to
04:10:10 3 contribute to the smoke flavor. There seems to
04:10:12 4 be a close relationship between the ratio of
04:10:16 5 total reducing sugars/total alkaloids and the
04:10:18 6 smoke's impact strength as well as
04:10:20 7 acceptability.

04:10:22 8 "Raising the smoke impact by
04:10:24 9 increasing smoke nicotine, and simultaneously,
04:10:28 10 smoothing the harshness by adding a suitable
04:10:32 11 organic acid and/or by adjusting the ratio of
04:10:36 12 total reducing sugars/total alkaloids to an
:10:38 13 optimal level may be able to improve the quality
04:10:42 14 of ultralow and lowest tar cigarettes
04:10:44 15 substantially."

04:10:46 16 Q. Does that summary refresh your
04:10:52 17 recollection about efforts to improve the smoke
04:10:56 18 impact of the ultralow and lowest tar
04:10:56 19 cigarettes?

04:10:58 20 MR. MURPHY: Objection as to form.
04:11:00 21 You can answer the question.

04:11:04 22 A. No. As I said before, I'm not a
04:11:08 23 subjective expert. My involvement with the
04:11:12 24 product development and subjective side of the
:11:16 25 operations when I was in R&D were at a

2058452070

Knudson - Highly Confidential - Trade Secret

superficial level, and -- so this doesn't do anything to improve my recollection of any of this work.

Q. Do you agree with the first sentence of the third paragraph, "Among the thousands of compounds identified in cigarette smoke, the single most abundant and important compound is nicotine"?

MR. MURPHY: Objection. You're asking for the witness's opinion?

MR. ROGERS: Yes.

A. I don't know whether either factually or as an opinion that I would agree with either part of that statement.

Q. Turning to the next sentence of that paragraph, "Nicotine contributes to the smoker's physiological as well as organoleptical satisfaction," do you agree with that statement?

A. I don't have any basis to agree with it. In some cases I'm not sure that I know what "organoleptic satisfaction" means.

Q. Your answer was "in some cases." Are there other cases where you do know what "organoleptical satisfaction" means?

1 Knudson - Highly Confidential - Trade Secret

04:12:38 2 A. No. I'm sorry. I misspoke. What I
04:12:44 3 was saying was that I really can't address the
04:12:50 4 comment because it is written at a level that I
04:12:50 5 don't understand the statement well enough to
04:12:50 6 draw any conclusions about it.

04:13:34 7 Q. Turning to the final paragraph on
04:13:36 8 this page, the first sentence, "Raising the smoke
04:13:44 9 impact by increasing smoke nicotine," do you
04:13:46 10 agree that increasing smoke nicotine will
04:13:48 11 increase the smoke impact?

04:13:50 12 MR. MURPHY: Objection. Again, these
:13:52 13 questions apparently call for the witness's
04:13:54 14 personal opinion. If that's what you want to do
04:13:56 15 with your deposition time, you're welcome to do
04:13:58 16 it, but I just think this is a completely
04:14:00 17 frivolous line of questions.

04:14:02 18 You can answer the question.

04:14:10 19 A. I don't have any reason to believe
04:14:16 20 that that -- that in any of my thinking, that
04:14:18 21 that statement makes any sense to me.

04:14:28 22 Q. Do you have any reason to believe
04:14:30 23 that it's not an accurate statement?

04:14:34 24 MR. MURPHY: Objection as to form.
:14:34 25 You can answer.

2058452072

Knudson - Highly Confidential - Trade Secret

04:14:38 2 A. ^{Really} I don't have any basis to draw any
04:14:38 3 conclusion.

04:14:50 4 Q. If you'll turn to page 19 of this
04:14:58 5 document, which is PA 917830.

04:14:58 6 (Witness complies.)

04:15:04 7 Q. And there's a new subheading, number
04:15:10 8 2, "PM studies on low delivery cigarettes." The
04:15:12 9 first paragraph reads, "A series of studies was
04:15:16 10 conducted in PM R&D during the period 1972 to
04:15:20 11 1976 on how to improve the impact strength of low
04:15:24 12 delivery cigarettes by raising nicotine. "

:15:24 13 Are you familiar with research
04:15:30 14 conducted in PM R&D during this period?

04:15:30 15 MR. MURPHY: Objection as to form.
04:15:32 16 The document speaks for itself as to whether
04:15:36 17 research was or was not conducted. Nevertheless,
04:15:36 18 the witness can answer the question.

04:15:38 19 A. I'm not familiar with the research.

04:15:48 20 Q. Are you familiar with any efforts by
04:15:52 21 Philip Morris to raise nicotine in order to
04:15:54 22 improve impact strength of cigarettes?

04:15:58 23 A. I don't have any recollection of
04:15:58 24 that.

:16:32 25 Q. What's the relationship between pH

2058452073

MANHATTAN REPORTING CORP.

Knudson - Highly Confidential - Trade Secret

04:16:34 level and nicotine delivery?

04:16:36 MR. MURPHY: Objection. You can
04:16:38 answer the question.

04:16:44 A. I don't know that I have any
04:16:46 awareness of what that relationship is.

04:16:54 Q. Is there any effect on nicotine
04:16:58 delivery if you increase pH level of tobacco?

04:17:00 MR. MURPHY: Objection. Lack of
04:17:04 foundation. This is getting extremely tiresome,
04:17:04 Alex.

04:17:06 If you want to continue to ask these
:17:08 questions, I'm not going to instruct the witness
04:17:10 not to answer them, but I continue to object
04:17:14 based on complete lack of foundation as to any
04:17:16 personal knowledge or information according to
04:17:18 the witness's own testimony.

04:17:22 You can answer the question.

04:17:24 A. I don't have any recollection.

04:17:28 Q. We've seen documents today with your
04:17:30 name on it that refer to the expression
04:17:34 "impact." And these other documents also refer
04:17:38 to the word "impact." And I'm simply trying to
04:17:40 determine whether or not it's the same use of the
:17:40 term "impact."

MANHATTAN REPORTING CORP.

2058452074

1 Knudson - Highly Confidential - Trade Secret

04:17:42 2 MR. MURPHY: I object to the form of
04:17:44 3 the question. Is there a question pending?

04:17:46 4 MR. ROGERS: ^{No, it's} ~~it's~~ not a question.

04:18:08 5 MR. MURPHY: I'm sorry. Do you have
04:18:10 6 a question to put to the witness, Alex, or is
04:18:12 7 that just an editorial comment?

04:18:14 8 MR. ROGERS: I don't have a question
04:18:14 9 at this time.

04:18:16 10 MR. MURPHY: Okay.

04:18:20 11 Q. Do you know who Frank Gullotta is?

04:18:22 12 A. I know the name.

:18:26 13 Q. Do you know which department he works
04:18:26 14 in at Philip Morris?

04:18:30 15 A. During my tenure in R&D, I was aware
04:18:36 16 that he was an R&D employee.

04:18:36 17 Q. Is he a scientist?

04:18:38 18 A. I believe so.

19 (Knudson Exhibit 8 for
20 identification, description of project number
21 1620.)

04:19:20 22 Q. You've just been handed what's been
04:19:22 23 marked Knudson Exhibit 8, a one-page document
04:19:26 24 Bates stamped PA 917964, Philip Morris production
:19:30 25 number 2022201801.

MANHATTAN REPORTING CORP.

2058452075

Knudson - Highly Confidential - Trade Secret

04:19:34 It is a description of project number
04:19:40 1620, project title, "Electrophysiological
04:19:44 studies." The project leader is F. P. Gullotta.
04:19:46 This document is written by C. S. Hayes. The
04:19:50 period covered is March 1991. It appears to be a
04:19:52 description of "pattern reversal evoked
04:19:56 potentials (preps)."

04:20:00 Are you familiar with pattern
04:20:00 reversal evoked potentials?

04:20:00 A. No, I'm not.

04:20:02 Q. Have you ever heard the term?

:20:06 A. I suspect I may have heard the term.
04:20:08 I don't have any recollection as to what it
04:20:08 means.

04:20:12 Q. The objective of this project is
04:20:16 stated as follows: "To objectively and reliably
04:20:18 evaluate human responses to cigarettes." Section
04:20:22 B is "Results," it says, "Prep, tobacco filler pH
04:20:24 modifications."

04:20:28 "Eight cigarette models ranging in
04:20:32 filler pH from 4.7 to 8.8 were made and smoked
04:20:34 for mainstream TPM collection and evaluation by
04:20:38 ARD (1). Three smokings of five cigarettes each
:20:42 were conducted for each cigarette model. TPM for

MANHATTAN REPORTING CORP.

2058452076

Knudson - Highly Confidential - Trade Secret

each sample was collected on a Cambridge filter pad backed with a cartridge containing XAD resin.

"The analytical results revealed that as pH increased more nicotine was trapped in the XAD cartridge (2). These data demonstrate a systematic relationship between increases in filler pH and increases in gas phase (presumably unprotonated) nicotine."

Reading this document, does that refresh your recollection about the relationship between filler pH and nicotine?

MR. MURPHY: Objection as to form. Again, lack of foundation as well. The witness can answer the question.

A. No, it doesn't do anything to further my recollection. As I pointed out, by this time I would have been out of R&D for something on the order of close to a year and a half.

Q. While you were at R&D between the years of 1982 and 1989, were you involved in any research involving the pH level of tobacco?

A. First of all, any work that my organization would have been involved in, as it

MANHATTAN REPORTING CORP.

2058452077

Knudson - Highly Confidential - Trade Secret

related to pH, would have been centered around either the project that we discussed some time ago, where obviously dealing with flavor systems to make RL more like BL, that some of the things we were doing may well have had impacts on pH as measured in the sheet product or in the flavor system.

And in the ART denicotinization work, we had done work where we had looked at process aides, if you will, that would allow the process to be -- to run more efficiently, to allow improvements in processing time.

But those were all -- it was all pH work done in support of those two projects, where the pH focus was on the pH of the fillers or sheet materials or flavor systems that we were dealing with.

I don't recall whether we did any work to look at whether or not there was any carryover of that pH work into finished product and resultant smoke deliveries.

Q. In describing the work to make what you say is, quote, RL more like BL, your testimony is that "some of the things we were

Knudson - Highly Confidential - Trade Secret

04:24:06 2 doing may well have had impacts on pH." Are you
04:24:08 3 aware of anything in particular in that project
04:24:12 4 that had an impact on pH?

04:24:14 5 MR. MURPHY: And here we're talking
04:24:14 6 again about the Semi-Works project he testified
04:24:16 7 to previously?

04:24:16 8 MR. ROGERS: We're talking about the
04:24:20 9 project to, quote, make RL more like BL.

04:24:24 10 A. The C pilot plant experimental work.
04:24:32 11 Obviously in using either an ammonia source,
04:24:36 12 diammonium phosphate, or in using ammonia
:24:42 13 directly, the potential was to achieve a pH
04:24:42 14 change.

04:24:44 15 Q. Would that have increased the pH?

04:24:50 16 MR. MURPHY: Objection as to form.
04:24:50 17 You can answer.

04:24:50 18 A. To the best of my knowledge, since
04:24:54 19 ammonia is a basic compound, it would have
04:25:00 20 resulted in an increased pH, a movement in a
04:25:00 21 basic direction.

04:25:04 22 Q. Now, with respect to the ART
04:25:10 23 denicotinization work that you've just described,
04:25:14 24 you use the term "process aides." We had looked
:25:20 25 at process aides. What do you mean by "process

2058452079

1 Knudson - Highly Confidential - Trade Secret
04:25:20 2 aides"?

04:25:26 3 A. The ART process which was based on
04:25:32 4 technology to use supercritical CO2 to extract
04:25:38 5 nicotine from filler, we looked at ways in which
04:25:44 6 we could accelerate that process to make that
04:25:50 7 nicotine removal more efficient.

04:26:08 8 MR. ROGERS: Why don't we take a
04:26:08 9 break.

04:26:10 10 THE VIDEO OPERATOR: We're going off
04:26:12 11 the record. The time on the screen is 4:26:11.

04:26:14 12 (A recess was taken.)

:46:48 13 THE VIDEO OPERATOR: We're back on
04:46:52 14 the record. The time on the screen is 4:46:50.

04:46:54 15 Q. Mr. Knudson, do you know whether
04:47:02 16 glycerine is added to RL?

04:47:04 17 MR. MURPHY: I object to the form.
04:47:04 18 You can answer.

04:47:06 19 A. No, I don't recall.

04:47:10 20 Q. Do you know what glycerine is?

04:47:16 21 A. I'm aware that glycerine is a
04:47:20 22 compound that we use as a casing material in the
04:47:20 23 industry.

04:47:24 24 Q. At what stage in the process is it
:47:26 25 used as a casing material?

2058452080

1 Knudson - Highly Confidential - Trade Secret

04:47:30 2 A. To the best of my recollection, it's
04:47:38 3 used in the primaries.

04:47:40 4 Q. And by "primaries," what do you
04:47:42 5 mean?

04:47:46 6 A. Primary being that location where the
04:47:48 7 tobaccos are put together and the output from
04:47:56 8 that process is the cut filler that then goes on
04:47:58 9 to the making and packing area.

04:48:08 10 Q. What are the names of the primary
04:48:08 11 facilities?

04:48:14 12 A. The primaries are all adjoined to the
:48:18 13 make pack facilities. So there would be a
04:48:20 14 primary in each of our four cigarette making
04:48:24 15 locations. Stockton Street, the MC, both here in
04:48:30 16 Richmond; the facility in Cabarrus; and the
04:48:32 17 facility in Louisville.

04:48:34 18 Q. And DMC, is that the manufacturing
04:48:36 19 complex?

04:48:38 20 A. The MC is the manufacturing center.

04:48:40 21 Q. Manufacturing center.

04:48:42 22 MR. MURPHY: It's MC, not DMC.

04:48:46 23 MR. ROGERS: I'm sorry. The reporter
04:48:48 24 had marked DMC.

:48:50 25 Q. The glycerine that's in the casings,

MANHATTAN REPORTING CORP.

2058452081

Knudson - Highly Confidential - Trade Secret

04:48:54 do you know why it's used in casings?

04:48:56 A. No, I don't.

04:49:04 Q. And you indicated that glycerine is a
04:49:08 compound. Do you know what the constituencies of
04:49:08 glycerine are?

04:49:16 A. When I called it a compound, that may
04:49:20 be a misnomer. But no, I'm not familiar with the
04:49:24 detailed chemistry of glycerine.

10 (Knudson Exhibit 9 for
11 identification, memorandum from H. L. Spielberg
12 to Mr. D. Knudson, dated February 2nd, 1988.)

:50:04 Q. Mr. Knudson, you've just been handed
04:50:08 what's been marked Knudson Exhibit 9. It's a
04:50:14 one-page document, PA 152347, and Philip Morris
04:50:20 production number 2031159175. It's a memorandum
04:50:26 from H. L. Spielberg to Mr. D. Knudson, ^{date}dated
04:50:30 February 2nd, 1988; subject matter, reconstituted
04:50:34 tobacco without glycerine.

04:50:38 Do you recall receiving this
04:50:38 document?

04:50:42 A. No, I don't have any recollection of
04:50:42 it.

04:50:46 Q. How did you prepare for your
:50:46 deposition?

MANHATTAN REPORTING CORP.

2058452082

Knudson - Highly Confidential - Trade Secret

04:50:52 2 MR. MURPHY: Objection as to form. I
04:50:58 3 think you could ask a more specific question that
04:51:00 4 would not potentially call for attorney-client
04:51:02 5 privileged communications, just to avoid any
04:51:02 6 problem.

04:51:04 7 MR. ROGERS: I don't think I've come
04:51:06 8 close to the attorney-client privilege. I'm
04:51:06 9 asking a general question, how he prepared for
04:51:08 10 the deposition today.

04:51:08 11 MR. MURPHY: Well, maybe you could
04:51:12 12 break down the question into components that
:51:16 13 would be clearly not calling for any kind of
04:51:18 14 communications between Mr. Knudson and counsel.

04:51:24 15 Q. Did you review any documents in
04:51:26 16 preparation for this deposition?

04:51:36 17 A. To my recollection, we reviewed a
04:51:38 18 very limited number of documents in preparation
04:51:38 19 for this deposition.

04:51:40 20 Q. Do you recall what those documents
04:51:42 21 were?

04:51:46 22 A. The only one in particular that I
04:51:48 23 recall, which is not to say that it was the only
04:51:54 24 document that was reviewed, but was a transcript
:51:56 25 of the ABC broadcast.

MANHATTAN REPORTING CORP.

2058452083

Knudson - Highly Confidential - Trade Secret

04:52:06 2 Q. You indicated that you reviewed a
04:52:08 3 very limited number of documents. How many would
04:52:08 4 you estimate?

04:52:12 5 A. I recall specifically reviewing that
04:52:22 6 one. In truth, we spent the vast majority of our
04:52:24 7 time in discussion without looking at documents,
04:52:28 8 or without my looking at documents.

04:52:30 9 MR. MURPHY: I'm going to object at
04:52:34 10 this point. I don't want you to testify as to
04:52:36 11 the contents or substance of any of the sessions
04:52:38 12 that we may have had to prepare for this
:52:40 13 deposition. I think the question is limited to
04:52:44 14 documents at the moment.

04:52:50 15 Q. How much time did you spend with your
04:52:52 16 lawyers in preparing for this deposition?

04:52:54 17 A. Parts of four days.

04:53:00 18 Q. And independent of documents that you
04:53:02 19 might have seen during those sessions, on your
04:53:06 20 own did you review any documents for this
04:53:06 21 deposition?

04:53:08 22 A. No, I did not.

04:53:10 23 Q. Did you speak with anybody at Philip
04:53:12 24 Morris about your deposition?

:53:24 25 A. Only to the extent of ensuring that

MANHATTAN REPORTING CORP.

2058452084

Knudson - Highly Confidential - Trade Secret

it was calendared, advising people that I work with that I would be out of the office during certain periods of time, either in preparation or in deposition.

Q. Have you spoken with anybody at Philip Morris who has been deposed in this case about their deposition?

A. No, I have not.

Q. Have you had any discussions with anybody at Philip Morris about this case?

MR. MURPHY: I object. Other than counsel?

MR. ROGERS: Other than counsel.

A. I'm sure that I've had casual what I'll call hallway conversations with people about the case. Early on, probably speculation of what it might mean and who might have to become involved in it.

Q. Let's turn back to Knudson Exhibit 9. Looking at this document that's addressed to you, does that refresh your recollection as to whether or not glycerine is added to reconstituted tobacco?

A. Based on reading this document, I

Knudson - Highly Confidential - Trade Secret

would presume at this point in time that
glycerine is used in reconstituted tobacco.

Q. Do you recall asking Mr. Spielberg to
run tests on reconstituted tobacco without
glycerine?

A. No, I don't have any recollection of
that.

Q. Do you know why he would have been
performing such tests in February of 1988?

A. No, I don't have any specific
recollection as to why that might have been
done.

Q. If you'll look down to the second to
last paragraph, it reads, "In general, the RL
products exhibited some subjective differences,
which is to be expected. They should be
evaluated in the appropriate blend and cigarette
construction for further direction."

I apologize. The reference I believe
to RL products are the RL products without the
glycerine.

Does that refresh your recollection
about subjective differences of RL products with
and without glycerine?

1 Knudson - Highly Confidential - Trade Secret

04:56:18 2 MR. MURPHY: I object to the form of
04:56:20 3 the question. I think the document speaks for
04:56:22 4 itself. But you can answer the question.

04:56:28 5 A. The statement there does not refresh
04:56:30 6 my memory in any way.

04:56:52 7 Q. I asked you earlier if you recalled
04:56:54 8 asking Mr. Spielberg to run tests on
04:56:56 9 reconstituted tobacco without glycerine. Your
04:56:58 10 answer was, "No, I don't have any recollection of
04:57:02 11 that." My next question was, "Do you know why he
04:57:04 12 would have been performing such tests in February
:57:06 13 of 1988?" Your answer was, "No, I don't have any
04:57:08 14 specific recollection as to why that might have
04:57:10 15 been done."

04:57:10 16 Do you have any general recollection
04:57:14 17 as to why that might have been done?

04:57:18 18 A. Only to the extent that it would not
04:57:28 19 be abnormal for testing of any number of types to
04:57:30 20 be ongoing within a research and development
04:57:38 21 organization. Said testing could be looking at
04:57:44 22 the exclusion of, the inclusion of, or the
04:57:44 23 variation in the level of different components
04:57:48 24 used in different products to see what the either
:57:52 25 physical property or subjective changes might

2058452087

Knudson - Highly Confidential - Trade Secret

be.

Q. And after reviewing this document, do you recall what stage in the RL process glycerine is added?

A. To the best of my knowledge, the place that glycerine would be added would be with the flavor system, hence added with the flavors and the solubles back to the base web.

Q. Would you consider glycerine a flavor?

A. Not being a subjective expert, I don't know whether glycerine has flavor properties or not.

(Knudson Exhibit 10 for identification, The Ingersoll-Rand Vari-Nip Press.)

Q. You have just been handed what's been marked Knudson Exhibit 10, which is a document on the front of which it says, "The Ingersoll-Rand Vari-Nip Press. The production numbers are PA 808574 to PA 808579. The corresponding Philip Morris production numbers are 2031232714 through 2031232719.

Do you know what the Ingersoll-Rand

MANHATTAN REPORTING CORP.

2058452088

Knudson - Highly Confidential - Trade Secret

05:00:34 Vari-Nip press is?

05:00:46 A. To the best of my recollection,
05:01:00 that's a -- either the size press used in the RL
05:01:02 process or an alternative piece of equipment that
05:01:04 could be used at that point.

05:01:16 Q. You're not sure whether the Vari-Nip
05:01:20 press is used in the RL process, or not?

05:01:36 A. No, I really don't know. I would
05:01:38 comment that obviously I have answered you
05:01:44 incorrectly here, as I read the first page. It
05:01:48 would appear that the Vari-Nip press is in
:01:54 fact -- has nothing to do with the resizing of
05:02:00 the solubles and flavor system back on the
05:02:00 product.

16 (Knudson Exhibit 11 for
17 identification, contents of file folder, bearing
18 Bates numbers PA 138470 to PA 1389482.)

05:03:16 Q. You've just been handed what's been
05:03:18 marked Knudson Exhibit 11, which is a document
05:03:22 that appears to be the contents of a file folder
05:03:28 that it's difficult to read the label, but I
05:03:32 think once I read this Bates stamp number we'll
05:03:34 walk through it to determine its contents.

:03:38 The document stretches from PA 138470

MANHATTAN REPORTING CORP.

2058452089

Knudson - Highly Confidential - Trade Secret

138482

05:03:44 2 to PA ~~1389482~~¹³⁸⁴⁸². Philip Morris numbers are
05:03:52 3 2030361786 to 2030361798. If you'll turn to the
05:03:56 4 second page of this document, which is PA 138471,
05:04:00 5 at the top of the page it says, "Line 3 press
05:04:00 6 design."

05:04:02 7 And then there's a list of
05:04:06 8 individuals. Roughly two-thirds of the way down
05:04:10 9 the list you'll see a reference to Mr. D. B.
05:04:10 10 Knudson, engineering.

05:04:14 11 And then if you turn the next page,
05:04:22 12 you'll see a memo from M. B. Mayer and D. L.
:04:26 13 Westra to those listed. The date of this memo is
05:04:28 14 May 30th, 1980. The subject is line 3 press
05:04:30 15 design.

05:04:38 16 In May 1980, what was your position
05:04:38 17 at Philip Morris?

05:04:46 18 A. That's right on the cusp of my either
05:04:48 19 being in engineering or being in purchasing
05:04:54 20 planning. The possibility is that I was still in
05:04:56 21 the engineering organization at that time.

05:05:02 22 Q. It appears from the second page of
05:05:04 23 this document that at the time the document was
05:05:08 24 written, you were in engineering. But I'm not
:05:10 25 going to pursue that any further.

2058452090

1 Knudson - Highly Confidential - Trade Secret

05:05:12 2 The third paragraph of this third

05:05:16 3 page, which is a summary of the memo entitled

05:05:20 4 "Line 3 press design," reads as follows.

05:05:22 5 "Because of the increased efficiency

05:05:24 6 and operational flexibility of the Vari-Nip

05:05:28 7 press, two lines of three Vari-Nip presses should

05:05:30 8 be installed in line 3. It's also recommended

05:05:32 9 that a Vari-Nip press should be purchased and

05:05:36 10 installed in line 2 as soon as possible to

05:05:38 11 further study the impact of the Vari-Nip press on

05:05:42 12 the liquor handling system and its effect on

:05:44 13 other operational parameters."

05:05:46 14 Do you recall being involved in any

05:05:50 15 way in the line 3 press design?

05:05:52 16 A. No, I do not.

05:05:54 17 Q. Do you remember receiving this

05:05:56 18 document?

05:05:58 19 A. No, I don't have any recollection of

05:05:58 20 it.

05:06:02 21 Q. And referring specifically to that

05:06:04 22 third paragraph that I've just read, and the

05:06:08 23 reference is to the Vari-Nip press, does that

05:06:10 24 refresh your recollection as to whether or not

:06:14 25 the Vari-Nip press is used anywhere at Park 500?

Knudson - Highly Confidential - Trade Secret

A. No, it doesn't.

Q. If you'll turn back to Knudson

Exhibit 10, which is the description of the
Ingersoll-Rand Vari-Nip press, I'll just read the
background section on page 1.

^{Background}
"About one-half (by weight) of our
raw material is soluble in hot water. The raw
material also contains some nontobacco material,
primarily sand. In order to economically make a
sheet of paper from the tobacco fibers we need to
separate the fibers from most of the solubles
(containing sugars that would present problems in
the paper making process) and foreign material.

"We mix the dry raw material with
hot water (actually weak process liquor after
initial startups) to form a slurry. The slurry
is then squeezed in the presses causing the
liquid containing most of the solubles and
foreign material to separate from the fiber. By
getting the soluble material into a liquid we can
also remove undesirable components and add other
material such as flavorings."

MR. MURPHY: I think you should just
read the next sentence or two sentences as well,

Knudson - Highly Confidential - Trade Secret

Alex.

MR. ROGERS: Fine. That reference you've just made, David, is to topic 2, which is "Purpose." "The purpose of the press is to separate the liquor containing tobacco solubles from the tobacco fiber. This is accomplished by 'squeezing' (or 'pressing') the slurry."

MR. MURPHY: Thank you.

Q. Does this description in Knudson Exhibit 10 accurately describe the separation of solubles from fibers at Park 500?

MR. MURPHY: I object to the form of the question. Lack of foundation. You can answer the question.

A. I think I've already demonstrated by my failure to recognize the Ingersoll-Rand Vari-Nip press and its location in the process that I'm not sufficiently well-versed to be able to comment on this.

I mean, I think the document -- and whoever generated the document, you know, it is representative of somebody's thinking, but I can't really comment on it. I'm just not familiar with the process or the equipment

2058452093

MANHATTAN REPORTING CORP.

Knudson - Highly Confidential - Trade Secret

involved.

Q. Based upon your understanding of the RL process, are dry raw materials mixed with weak processed liquor after initial startups to form a slurry?

A. Again, my understanding of the process is at such a level that to understand the difference between whether it's hot water or whether it's weak ^{process} ~~processed~~ liquors, I can't answer the question.

There's obviously a step in the process where hot water is brought into contact with the feedstock to create an environment from which a separation of the tobacco solubles and the cellulosic material could occur.

And this document appears to describe at least one means of carrying out that mechanical separation.

Q. If you'll turn to Knudson Exhibit 11, to the fifth page of the document, which has Bates stamp PA 138474, on the top of that page is a subheading, C, "Operating conditions." And there are then listed two separate operating conditions, and then broken up into separate

MANHATTAN REPORTING CORP.

2058452094

1 Knudson - Highly Confidential - Trade Secret
05:10:24 2 categories.

05:10:30 3 The condition 1 is entitled "For all
05:10:32 4 conditions." And then there's items A through
05:10:32 5 E.

05:10:36 6 "A, assume no fiber losses, therefore
05:10:40 7 pressate solubles are equal to total solids. B,
05:10:46 8 RBW used for dilution on all presses except for
05:10:50 9 Vari-Nip countercurrent operation where WEL-3 is
05:10:52 10 used for dilution of press cake from press 1-A.
05:10:58 11 Item C, RBW is assumed to be 2 percent solubles,
05:11:00 12 zero percent fiber. Item D, assume all liquor
:11:06 13 goes to cleaner feed tank (CFT) except in
05:11:10 14 countercurrent condition. Item E, all conditions
05:11:16 15 are calculated for flow to one press line only."

05:11:20 16 I'm going to turn to item B to ask
05:11:22 17 you a question. Do you see RBW?

05:11:22 18 A. Yes, I do.

05:11:24 19 Q. Do you know what that refers to?

05:11:26 20 A. I believe that's an expression used
05:11:28 21 in the factory for rich brown water.

05:11:30 22 Q. What is rich brown water?

05:11:32 23 A. I don't know.

05:11:36 24 Q. Reading item B, "RBW used for
:11:38 25 dilution on all presses except for Vari-Nip

2058452095

Knudson - Highly Confidential - Trade Secret
countercurrent operation where WEL-3 is used for
dilution of press cake from press 1-A."

Does that refresh your recollection
about the Vari-Nip press?

MR. MURPHY: I object to the form of
the question. Same problem as before. The
witness can answer the question.

A. No, it doesn't.

Q. Item C is "RBW is assumed to be 2
percent solubles, zero percent fibers." Do you
have any reason to disagree with that statement?

MR. MURPHY: I object to the form of
the question. Lack of foundation. The witness
may answer.

A. I don't have any basis to agree or
disagree with that characterization.

Q. Do you know what WEL-3 is?

A. No, I don't. I don't have any
recollection.

Q. Have you ever heard the term SEL?

A. Yes, I have a recollection of hearing
the term.

Q. What do you understand SEL to be?

A. I don't have any recollection of what

Knudson - Highly Confidential - Trade Secret

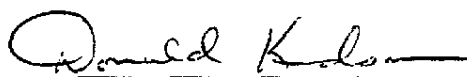
SEL stands for.

MR. MURPHY: It's now about 5:13. I don't want to cut you off in the middle of a document or a particular line of questions, but if we're at a convenient breaking point, we're just about at the end of our allotted day.

MR. ROGERS: I accept that. Let's stop.

THE VIDEO OPERATOR: We're going off the record. The time on the screen is 5:13:59.

(Time noted: 5:13 p.m.)



DONALD KNUDSON

Subscribed and sworn to before me
this 26th day of MARCH, 199~~8~~⁶.



My Commission Expires 4/30/97

2058452097

Knudson - Highly Confidential - Trade Secret

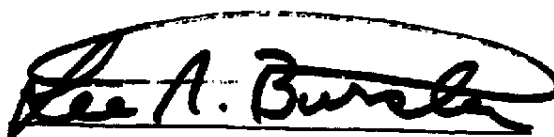
C E R T I F I C A T E

I, LEE A. BURSTEN, a Registered Professional Reporter and Notary Public within and for the Commonwealth of Virginia, do hereby certify:

That DONALD KNUDSON, the witness whose deposition is hereinbefore set forth, was duly sworn by me and that such deposition is a true record of the testimony given by the witness.

I further certify that I am not related to any of the parties to this action by blood or marriage, and that I am in no way interested in the outcome of this matter.

IN WITNESS WHEREOF, I have hereunto set my hand this 14th day of July, 1995.



LEE A. BURSTEN, R.P.R.

2058452098

MANHATTAN REPORTING CORP.

Knudson - Highly Confidential - Trade Secret

E X H I B I T S

DESCRIPTION

PAGE LINE

(Knudson Exhibit 1 for identification, Philip Morris Incorporated's answers to American Broadcasting Companies' first set of interrogatories.)..... 69 20

(Knudson Exhibit 2 for identification, Line 1/2 potential quality measurements.)..... 84 15

(Knudson Exhibit 3 for identification, memorandum from the quality council to all Park 500 employees.)..... 101 13

(Knudson Exhibit 4 for identification, handwritten notes.)..... 111 3

(Knudson Exhibit 5 for identification, meeting minutes, 11/22/83.)..... 123 10

(Knudson Exhibit 6 for identification, Annual report, applied technology, 1982 -1983.)..... 146 22

(Knudson Exhibit 7 for identification, Basic flavor investigation.)..... 164 7

(Knudson Exhibit 8 for identification, description of project number 1620.)..... 173 18

(Knudson Exhibit 9 for identification, memorandum from H. L. Spielberg to Mr. D. Knudson, dated February 2nd, 1988.)... 180 9

(Knudson Exhibit 10 for identification, The Ingersoll-Rand Vari-Nip Press.)..... 186 14

(Knudson Exhibit 11 for identification, contents of file folder, bearing Bates numbers PA 138470 to PA 1389482.)..... 187 15

MANHATTAN REPORTING CORP.

2058452099